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THE

TRANSLATION INTO ENGLISH

OF THE

PRINCIPAL REFERENCES

TO THE

SIXTY-SIX ANATOMICAL PLATES

OF THE

LATIN EDITION

OF

SCHOLA MEDICINÆ UNIVERSALIS NOVA,

OR, THE

NEW UNIVERSAL SCHOOL OF MEDICINE.

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BRITISH MUSEUM

TRANSLATION, &c.

TO obviate many defects in medical education, to promote the acquiſition of medical ſcience with greater facility, to render the principles and practice of medicine leſs conjectural, and to diffuſe its excellent and humane benefits through all the earth, were the exciting motives, that ſtrenuouſly impelled the author to write *Schola Medicinæ Univerſalis Nova* in Latin.

The principal impediments to uſeful medical ſtudies, it appeared from cloſe inſpection and much reflection, were the multiplicity of authors, the variety of dubious ſyſtems, and the contrariety of opinions with which medicine ſuperabounded. Profeſſors formerly made a great diſplay of apparent erudition by diffuſive lectures, redundant in words and ſpeculations, parſimonious in matters of fact and abſolute truths. This conduct in the teachers bewildered the underſtandings of the ſcholars; the former taught, and the latter imbibed prejudices from which they could never emancipate themſelves through life: the deſtruction, inſtead of the preſervation of the human ſpecies, have frequently been the conſequence. Medicine, that divineſt of arts! under ſuch circumſtances, became often a peſtilential ſcourge inſtead of a bleſſing to human ſociety, and yet, whoever dared to attempt improvement, or laudably endeavoured to produce a reformation, was certain of inevitable ruin for his temerity: for every innovator, however meritorious, was accounted raſh; but every aſſentor to opinions, and ſupporter of common doctrines, was conſidered prudent, wiſe, and learned. The examples of puniſhment for the greateſt exertions of human ſkill and induſtry have deterred many excellent men from delivering to ſociety the honeſt fruits of their labours, and mankind, by theſe means, have been deprived of ſeveral uſeful diſcoveries. It requires *Herculean* ſpirit to cleanſe the *Augæan* ſtable of the accumulation of ages; *ſed nil deſperandum*: led by ſacred truth, error and fallacy muſt vaniſh.

The introduction of an immenſe number of volumes is frequently ſuppoſed an indubitable ſpecimen of profound learning, and juvenile vanity is pleaſingly gratified by a free acceſs to large libraries; but extenſive libraries are, to many, great evils: for they oftener confound than inſtruct ſtudents, by overwhelming the memory, without informing and elevating the judgment.

The inceſſantly poring over books, collecting ancient and modern opinions from medical authors, and an alacrity in aſſenting to plauſible doctrines, have been conſidered as ſtudying medicine, and ſufficient to entitle the ſcholar, with very little practical experience, to the confidence of the ſick, as a regularly educated medical practitioner. The degrees of Bachelor and Doctor of Phyſic are frequently obtained on ſo ſuperficial a foundation, as common experience, and the ſtatutes of ſome univerſities conſtantly exemplify, to the diſgrace of modern ſcience and literature.

A diligent ſtudent, however, who daily obſerves, and writes down the ſymptoms of diſeaſes, as they occur at the *bedſide* of the ſick, their modern and moſt judicious treatment in an hoſpital of full practice, if he hath obtained anatomical knowledge by actual diſſections, will comprehend more of the medical art in three years, than the moſt induſtrious univerſity ſcholar, under the influence of the former mode, can ever acquire. This I aſſert from above forty years obſervation and experience, not as a matter of opinion, but as an indubitable fact, repeatedly proved at the St. Mary-le-bone Infirmary, where I have the honour of being phyſician,* and at other hoſpitals.

The hoſpital ſtudent dedicating his time to the different branches of the art, not in caſual reading, but in the actual practice of pharmacy, medical chemiſtry, ſurgery, and the medical treatment of diſeaſes, under the inſpection of an able, honeſt, and experienced preceptor, who liberally communicates the faithful reſult of long, judicious obſervation, and who guards the juvenile mind againſt thoſe flights of fancy and numerous prejudices which are daily annoying the profeſſion, will ſoon obtain a practical knowledge of the extent and power of the healing art, determined by repeated and real facts, ready to be applied on all ſubſequent occaſions. The wader through ſtupendous volumes of endleſs repetitions and contradictions, ſuppoſing him ſufficiently induſtrious for the purpoſe, if any excellence ſhould occur, unleſs he unite practical remarks on numerous diſeaſes by ocular demonſtration in an hoſpital, and be poſſeſſed of a mental penetrating acumen void of all prepoſſeſſion, pride, or prejudice, he is incapable of ſelecting the pure metal from the *ſcoria* with which it is obſcured, or often ſurrounded; for he will often receive plauſibilities as though they were ſacred truths, and try inefficacious medicines, at the expence of the patient's life, or health, in important diſeaſes.*

Theſe conſiderations induced the author, early in life, to attempt the concentration of the moſt uſeful knowledge of ancients and moderns in *Hiſtoria* and *Schola Medicinæ*, that medical preceptors, if diſpoſed, might convey ſcience with leſs circumlocution and ſeducing ſpeculation, and that ſtudents inclined to be ſatisfied with truth, ſeparated from all fleeting and idle hypotheſis, by being early and promptly initiated into the paſt and preſent ſtates of medicine, they might be enabled to induſtriouſly commence improvements, wherever defects were diſcoverable, and thus give a degree of perfection and ſtability to the healing art, unknown to our predeceſſors; which every humane practitioner muſt ardently wiſh.* Theſe attempts to improve the modes of inſtruction, humanity and the art demanded, as ſome ſmall return for the confidence the author hath enjoyed ſo many years as a medical practitioner in this great metropolis; for if his practice and experience had not been ſo very extenſive, he could not have been able to make theſe and other numerous obſervations to be found in the Rational Practice of Phyſic, &c. The firſt road to amendment is to diſcover defects; the ſecond to eradicate, if poſſible, error; the third to avoid future prejudices by the excluſion of opinions however plauſible; and fourthly, to be determined to generouſly embrace the truth, however it may remind us of paſt ill-formed conceits, from whatever quarter it may originate. By theſe liberal means hypotheſis and falſhood will be baniſhed from the healing art, and it will ſpeak a new language, the language of truth, to the confuſion of all thoſe, who, for temporary advantages, or vanity, lead juvenile ſtudents into vain, uſeleſs ſpeculations, inſtead of impreſſing on their young minds the neceſſity of admitting no propoſition that is not fully proved. The vain attempt to account for every phenomenon in nature, however incomprehenſible, has led philoſophers and phyſicians into continual error: they often confound the inquiry, which may be laudable, for the attainment. If men would firſt ſtudy the extent of human underſtanding, and what things the utmoſt induſtry may accompliſh, they would not ruſh into the vice of ſuppoſing every thing obtainable that is ſought; but they would rather modeſtly reſt ſatisfied with being ignorant, and acknowledge their incapacity in every inquiry that exceeds the limits of human comprehenſion. The leſſon of the great philoſopher cannot be too frequently inculcated to all human beings, *know thyſelf*. This ſtudy might exclude pride, arrogance, and ſelf-conceited importance, from the medical art; for medicine ſhould be the ſcience of *humanity* and *humility*. If univerſal ſelf-knowledge were more the object of man's conſideration, all reports and aſſertions would be well conſidered and analiſed before they received aſſent. Credulity is the vice of the ignorant through ſimplicity, and of the well-informed through inattention: but whatever may be its excellence in ſpiritual matters, it is highly reprehenſible in philoſophy. If any thing marks the difference between ſtrong and weak intellects, it is cool caution, or vicious credulity; and it may be affirmed, without heſitation, that in proportion as any man is credulous in what cannot be comprehended, he is ſuperficial, mad, or fooliſh. This doctrine,

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* In the medical department there, the field for obſervation and practice is immenſe, my preſcriptions taken collectively amount to above 20,000 annually, which has been proved by an eſtimate made by Dr. Hooper, of the ſaid Infirmary.

† If the ſtudent were to wade through the ſtupendous volumes of the great *Hoffman*, or the Commentaries of *Van Swieten*, for inſtance, would he diſcover the direct road for applying remedies to individual diſeaſe? No! he may acquire a wavering inconſiſtent practice, which an experienced *practical pupil* would be able to point out and correct. It is *practice* makes perfection in any practical art, not reading and contemplation: one excellent cure in a difficult diſorder is worth a thouſand of the moſt acute hypothetical reaſonings, or ſpeculations.

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[*] Many writers reaſon well and practiſe ill, and in dangerous caſes they often depend on inefficacious medicines. No inconſiderable part of the preſent work was arranged and written whilſt the author was attending his *terms* at the *Univerſity of Oxford*, but various obſervations have ariſen from the author's travels into *hot climates*, when in his Majeſty's ſervice, from 1760 to 1765, and through moſt parts of *Europe*, afterward, to inſpect the excellence or defects of medical education and practice in the principal *univerſities* and *hoſpitals*: and he is convinced, from forty years ſtudy, experience, and reflection, that *theory* without a rich treaſury of *practice*, is like a *body* without ſoul or animation.

applied to medicine, attacks, in ſome inſtances, moſt of the writers and philoſophers from *Hippocrates* to the preſent day; but reſerving to ſome future opportunity more on theſe ſubjects, it is time to give an account of the *Schola Medicinæ*, or School of Medicine, and to exhibit its arrangement, intentions, and utility, and in what it differs from all other medical writings hitherto publiſhed.

PREFACE IN LATIN

IS ſhort, intimating that the *Schola Medicinæ* comprehends what is uſeful from the earlieſt ages to the preſent period, extracted from all authors, ancient and modern; yet ſo conciſe, as not to bewilder the ſtudent's mind in uſeleſs inquiries. What the author hath obſerved in his long ſtudy, practice, and reflection, is candidly, and without any reſerve, introduced. The third volume, written in Latin, and ready for the preſs, containing, in a new and brief manner, the whole practice of all the branches of medicine, the utmoſt extent and power of the medical art in curing diſeaſes, with every modern diſcovery that has been determined uſeful by facts, ſeparated from thoſe huge maſſes of ſpeculation, opinions, and abſurdity, which have conſtantly been forced into this practical art, will be hereafter publiſhed, if the preſent volumes be approved, and the author's life be ſpared to accompliſh theſe intentions.

THE HISTORY OF MEDICINE

COMPREHENDS, in an abridged view, all the writers of conſequence from the earlieſt ages to the preſent time; their opinions, and the progreſs which phyſic has made, in ſo many ages, towards the degree of perfection, that diſtinguiſhes the moſt refined modern medicine from all preceding times.

At the end of the Hiſtory is a Chronological Table from the beginning of the world, as generally received, to the preſent æra. This Table is divided into columns, ſhewing the times when the principal inventors and improvers of medicine lived; namely, from the creation of the world; before Jeſus Chriſt, in what Olympiad of the Greeks, and how many years from the building of Rome. By this Table may be diſcovered, when, and under what reign or government, the moſt eminent contributors to the art of medicine flouriſhed; as likewiſe philoſophers, princes, emperors, &c.

THE CONSPECTUS.

THEN follows a *Conſpectus* of the whole work, ſhewing the methodical arrangement of the *Schola Medicinæ*, and a brief intimation of whatever the work contains.

PLATES IN THE HISTORY OF PHYSIC.

THERE are ſix plates in the Hiſtory of Phyſic, which, as they are more curious than uſeful, ſhall be conciſely explained, not, in all inſtances, exactly correſponding with the Latin. There have been many medals and coins ſtruck in honour of medical deities: the inſcriptions ſtill extant are almoſt innumerable, cut in ſtone, and ſtill preſerved among the curioſities in Italy, a large collection of which I made in my travels.

PLATE I.

IS a repreſentation of the moſt ancient and curious piece of Ægyptian ſculpture now remaining; known by the name of the *Tabula Bembina*, or *Iſiaca*; perhaps ſoon to be removed (amongſt other excellent antiques and works of art) from Italy to the famous Paris gallery, now erecting for the ſpoils of the preſent unparalleled and deſtructive war. The grand gallery extends, it is reported, from the garden of the *Thuilleries* to the *Place de Louis Quinze*. The figures on the left and upper ſide conſiſt of *Iſis* on her throne in the middle; the two figures on each ſide with ſwelling breaſts are ſuppoſed tutelary deities, &c. The letters of reference to the plate have been omitted, but the following deſcription, chiefly from *Kircher*, will be a ſufficient explanation.

Explanation of the firſt Plate of the Hiſtory of Medicine.

THAT the reader may have a clearer view of the whole, I will give a plan, or ſcheme, taken from the Menſa Iſiaca, called the Tabula Bembina; becauſe the moſt eminent Cardinal Bembus firſt obtained it, an ineſtimable monument of Egyptian antiquity; which then, by the help of Æneas Vicus, of Parma, came into the poſſeſſion of the Duke of Mantua, and was placed in his Gazo Phylacium, or cabinet of curioſities: afterwards, it was carried away at the ſiege of the city: laſtly, I know not by what good fortune it was brought to the Duke of Savoy, and I hear, it is preſerved among his rareſt cimelia, or precious gems. From the the ſchematiſma, or plan, of this plate, it ſeemed beſt to ſelect the medium to prove the truth of what is here mentioned; from which will clearly appear the manner and way of repreſenting the ſupreme deities of the Egyptians, which is as follows:

Here may be ſeen the throne, A. B. C. D. L. M. which the Hieromyſtæ, or *ſacred* interpreters of religious myſteries, call the great gate of the Gods, conſtructed with all the ſymbolic architecture; whoſe *coronis*, or higheſt ornament, or frons A. B. repreſents flames riſing in the form of ſerpents. The ſecond coronis C. D. with a winged globe, the third E. F. and baſis L. M. of the throne, are marked in the ſame manner. The whole coronis, with two columns E. L. and F. M. is marked with white and black ſteps, of which E. L. ſuſtain the ſmall head of *Iſis* put on it. To this throne is inſerted a figure S. in a female dreſs, from the middle to the feet in the form of feathered drawers, from the middle riſing towards the cheſt a ſwelling breaſt. Her head is covered by a ſacred *vitta Ægyptiaca*, Meleager, or Ægyptian head dreſs, a turkey hen is expanded over head, which endeavours to fly, on its back is a *calathus*, or ſacred cup, from which the leaves of two *perſca* ſpring, and two *cornua*, which include the circle marked with the figure of a ſcarabæus, or beetle; in one hand ſhe holds a ſceptre with the flower of the *lotus*, or herb, the ſeed of which the Egyptians made bread; with the other ſhe expreſſes that geſture, in which any thing is commanded to be done in an imperious manner. She ſets on a poliſhed ſeat, on which is delineated the figure of a dog in a ſitting poſture. Under the throne is ſeen an abacus, the limbus, or border, of which, as well as all the circle of the throne, is decorated with ſtars. Within the abacus is placed a figure laying down, compoſed of a lion and hawk, ιερακο-λεοντωμορφος, which is ornamented on the head with the phaſis of the Auguſt, or ſextile moon, with a ſtar; containing by its anterior feet a canopus, but on its back vero globu alatus ſerpentifer is ſeen with a ſcepter.

The ſupreme corona A. B. of the throne, or gate, ſpread out like flames οφιομορφων, indicates the Supreme Intelligence filled with light and life, eternal, incorruptible, free from all contagion of matter; Ηνικε μεν βλεψης μορφης ατερ ȣ ιερον πυρ λαμπομπθρυον σκηρτηδον ολον κατα βυθεα κοσμȣ, κλυθε πυρος την φωνην.—When you ſee the ſacred fire glittering without any form of the whole world, then you advert to the word of fire.—*Zoroaſter in oraculis.*

—— Beſides, all the images on obeliſks are nothing elſe than amulets, ſeu prophylactica, or ſpells, or charms, which by the mentioned analogical apparatus of things, as ſoon as they were conſecrated, they believed that by the ſuperior powers they derived virtue through a certain inevitable neceſſity, and that all the train of evils were averted by the aſſiſtance of the genii who preſided over them; concerning which there are many very curious circumſtances in the *Magia et Theologia Hieroglyphica*, to which we refer the reader. They held magic ſchemata of this kind of great efficacy and virtue in the *cure of occult diſeaſes*; for the *genii*, to whom the rites and ceremonies were offered, were ſuppoſed to appear *during ſleep* to thoſe who were expiated by a previous faith, or diſpoſition, and teach them the cure of diſeaſes, as the ſcribe Aſtrampſychus relates concerning the epie. He conſulting *Iſis* concerning an incurable diſeaſe in the night time, ſaw the ſame ſtanding with ox's horns a flowery tutulus, a variegated garment, in the ſame manner as they repreſent her hieroglyphically adorned in adytis, or altars; ſhe offered to him with her hands the herb *motmutin*, the only medicine for the diſeaſe with which he ſuffered, which herb, when after ſleep he had carefully obtained, he cured himſelf, and as many as were troubled with this diſeaſe, by its application, from the fear of death. See many circumſtances concerning theſe things in hieroglyphic medicine, and *magic*.

—— Two figures are placed near it, the one R. with a male, the other X. with a female habit, *tutuli*, or tutelary deities, with flowery ſceptres and ſwelling breaſts, who ſeem by their looks towards Jynges, the firſt mind, to attend his commands; the leaders or guardians of the ſenſible world, according to Pſellus et Jyngis, the adminiſtrator of theſe, and they indicate the active and paſſive principle of things; by the virile and female habit with the ſwelling breaſts, they pourtray fœcundity; by their contracted hands they ſhew efficacy in acting; by their tutuli and ſceptres, they exhibit a power given to them in all things from the Iynx; in the tutulus trigonus affixed to the globe, they ſhew that all things flow from an archetypus trigonus, or archetype triangle;* by the ſerpents contorting themſelves in the tutelary figure X. the vital motion is obſerved in all things; by the word tutuli, they demonſtrate, according to the ideas conceived in the Supreme Mind, they ſhew that He adminiſters the orders of things; all which are confuſed by ſo many and ſo great myſteries, that, I will not ſay one page, nor one whole book, can properly explain them; wherefore it is ſufficient to give a ſpecimen of the myſtic ſolertia, or comforts, with which the wiſe ancients adorned their ſepulchres: he who is deſirous of attaining farther information may conſult the hieroglyphic works, where he will find all fully deſcribed, and differently proved, in the Theologia Ægyptiaca, and in the Expoſition of the Tabula Bembina by Kircher, in the works of Jablonſki, &c.

Second figure—*Oſiris*.

Third figure—*Horus*.

IV. You obſerve in the Ophis ſtone three ſparrows cut out, then three circles, and afterwards three ſphynxes like lioneſſes; after that the Conjuratio Numinum, or conjuration of the deities, in few words in the Egyptian language. To underſtand this, I will explain it with equal brevity. By the three ſparrows the threefold intelligible world, or archetype of the ſtars, Oſiris; by the three circles, an evident mark of divinity; by the three ſphinxes ſignifies three times three of the world; and as Oſiris ancipitrinus, or Oſiris with a hawk's head, is the author of heat; ſo is *Momphta* of moiſture; from their juſt attemperation, all things originate, which are perceived in a threefold degree of nature; ſo alſo from their diſcraſia, or intemperies, it is neceſſary that ſterility is produced, to avert which they placed a patella of this kind as an *amuletum*, or amulet, on the head of the ſtatue of Momphta, in addition to that which they pretended to obtain by magic murmur, or adjuration. The words in the Ægyptian or Coptic Language are in Latin, O three times powerful divine Oſiris, Mophta, Mophta, Mophta! I beſeech you three times by this ſign, Thoth, Thoth, Thoth, *i. e.* Mercurius, who, as the keeper of the three ſacred faviſſæ, or ciſterns, the keeper, the keeper, powerful with the threefold ſceptre of thy dominion, &c.

V. Onuphus, a ſacred bull:—for Nuphi, or enuphi, or even anuphi, ſignifies good but ehe, or ahe, ſignifies a bull, Onuphim; onuphim, may very conveniently be interpreted a good ox, becauſe it portended good to Egypt, alſo Henuphi ſignifies ευθυνιαν. in the Coptic Language, it expreſſes *copia*, *ubertas*, *abundantia*, plenty.

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* This favours ſomething of the Trinity, and ſimilar veſtiges remain among the Aſiatics, &c.

The other five plates are repreſentations of rings, medallions, &c. from real antiques, in fine preſervation. They were engraved, or ſtruck on various occaſions; on one ſide of moſt is the head of ſome emperor, &c. on the other ſide is the repreſentation of the deities, who, it was ſuppoſed, in thoſe ages, preſided over medicine. Among theſe are diſcovered *Iſis*, *Oſiris*, &c. of the Egyptians; Apollo, Æſculapius, Hygeia, &c. &c. of the Greeks and Romans. Many of the inſcriptions are in Greek, and ſome few in Latin. I could here expatiate much on theſe ſubjects, having, at a former time of life, ſtudied the *Coptic language*, aſſiſted by the excellent grammar of that worthy man, now no more! Mr. Woide, of the Muſeum. Theſe reſearches proved, that the deities of the Egyptians were the identical gods the Greeks and the Romans afterwards adored. The names, indeed, were different, but, in general, the meaning of the names correſponded in the *Coptic*, the Greek, and Roman. The ſame attributes, and, in ſome reſpects, ſimilar modes of worſhip were adopted by Egyptians, Greeks, and Romans. I think, I have proved, by theſe inveſtigations, that many of the Greek deities, which that extraordinary people boaſted to be of Greek origin, were not ſo, but borrowed from the Egyptians, and, in ſome inſtances, from the Perſians. Theſe ſubjects, which are not much to the preſent purpoſe, and only agreeable to the antiquarian, I ſhall deſiſt from ſpeaking more on, for the preſent; but at ſome future period theſe inveſtigations may be reſumed, and ſome lights thrown on thoſe curious opinions of the ancients concerning their deities, which the blind zeal for different religions and ſectaries hath almoſt totally obſcured. The Romans admitted the worſhip of whatever gods the people choſe to adore, or according to the country they emigrated from: whether this hath been political, it is not eaſy to determine.*

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* In my travels I remember, on going to view the ruins of *Herculaneum* and *Pompeii*, near *Naples* and *Mount Veſuvius*, I obſerved, that in Pompeii, the old lava and rubbiſh ariſing from the famous eruption in the time of *Pliny* had been cleared away, ſo as to enable the curious traveller to walk in the ſtreets, enter and examine the houſes in all their various parts; on the ſtocco walls are many elegant paintings, as freſh as though they were painted but a few days ago. In one ſtreet is an entire chapel, which was dedicated to *Iſis* and *Bacchus*; the one an *Egyptian*, the other a *Greek*; and, nearly oppoſite, is the houſe of a Roman ſurgeon, where all the inſtruments mentioned by *Celſus* were found, and which are now depoſited in the palace of *Portici*, belonging to the King of Naples. In this palace are eleven or twelve rooms full of the antiquities of the cities of Herculaneum and Pompeii; a catalogue of which I took, and have in my poſſeſſion. What is remarkable, among other things, is an inſcription on the floor, or rather Moſaic or teſſalated pavement in the refectorium of the above-mentioned chapel—CORNELIA CELSA—The famous *Cornelius Celſus*, whoſe work is the moſt ſenſible, perhaps, of any of the ancients, as well as the moſt elegant claſſic Latin extant, lived near the period of this eruption of *Mount Veſuvius*, which deſtroyed thoſe cities, as likewiſe *Apuleius Celſus* lived nearer, or at the ſame time. It does not appear very improbable that this *Cornelia Celſa* was ſome relation of Celſus, and that one or the other lived in that very houſe, where complete ſets of ſurgeons inſtruments were found, as likewiſe places formed for anatomical purpoſes under ſome of the apartments. In my ſmall collection of bronzes may be perceived the progreſs of the art of ſculpture from the rude Egyptian figure to the higheſt perfection among the Greeks and Romans. The antique buſt of *Cicero*, in my poſſeſſion, is a *chef d'œuvre* of art, as to anatomical accuracy. What is remarkable, that on the ſide of the cheek in the antique Cicero at *Oxford*, the wart is on the right cheek, juſt on the inferior margin of the *os malæ*, or cheek bone; that ſculpture ſhews the great orator younger than mine. In the face of my antique, juſt in the ſame ſpot, wherein the Cicer, or rather excreſcence, appears prominent in the Oxford ſtatue, is a circular indentation in mine, as though the excreſcence had been extirpated, and the part after the removal had formed an hollow.

Plate the Second of the Hiſtory of Medicine.

I. Salus, the image of health, is not rare in coins.—The veneration of health, or ſalus, was very great among the *Greeks*, as well as the Romans: from hence theſe frequent inſcriptions—to perpetual health—to public health—to ſacred or holy health—to Æſculapius and health, &c. in Gruter and Reyneſius, &c.

II. A ſacrifice to health.

III. Æſculapius ſacrificing to the ſun and moon.

IV. Iſis with Mercury's golden wand, or rod.*

V. A Pantheon head, not female but male, with the horn of the Arietine Jupiter Ammon; the calathus, or ſacred cup, intimates *Serapis*, the trident Neptune, the ſerpent Æſculapius, &c.

VI. Iſis joined to Serapis and Oſiris.

VII. A golden ring with Serapis.

VIII. A ring with the healthful goddeſs.

IX. A ſacrifice to the god of phyſic by the Pergamenians.

X. Serapis worſhipped by the Rhodians.

XI. Serapis adored at Rhodes.

XII. The people at Cos (where Hippocrates flouriſhed) adoring Æſculapius, Diana, &c.

XIII. Minerva and Æſculapius. The Pergamenians coming from Arcadia worſhipped Æſculapius and Minerva. *Lucian*, in his witty manner, ſays, that Æſculapius exerciſed the art of medicine in this city (at Pergamus) and had opened a ſhop, meaning the temple, where credulity and ſuperſtition led the faithful, as

hollow. They both correſpond as to the ſituation of the wart, only that in the Oxford it remains protuberating beyond the ſkin; in my buſt of *Cicero* it ſeems to have been removed. The buſt, I have, could not have been finiſhed long before the great orator's cruel death; the expreſſion in the face is ſtriking, and correſponds with ſome antique ſeals of which I had impreſſions. The *face*, the *pomum Adami*, the muſcles of the neck, the clavicles, ſuperior parts of the breaſts, &c. are all exquiſitely delineated and finiſhed with the moſt expreſſive ſtrokes of art. There are but three antique buſts of *Cicero* extant in Europe except that which I poſſeſs, which I procured in an extraordinary manner. This may appear a digreſſion, but as I have hinted in my book on the Neceſſity of encouraging Anatomy, that the defects in modern ſculpture are owing to want of exquiſite anatomical knowledge, ſome liberal and generous prince, protector of the arts, may ariſe hereafter, who would not ſuffer the ſtudents and artiſts to copy from Greek or Roman originals, when, if more judicious modes of ſtudying geometry, mathematics, optics, and catoptrics, were adopted, and proper encouragement given in the Royal Academy to perſons of real merit and abilities, men would appear who would ſoon equal, if not ſurpaſs, the moſt cultivated ages of the Greeks and Romans. The moſt excellent artiſts would not ſervilely and humbly copy, but would elevate their minds, and give the grandeſt ſpecimens of originality in their admirable productions. It is the intereſt, it is the duty of princes and nobles to encourage the arts, literature, and all men of genius; for who can diſplay their virtues, reprehend their vices, or conceal their defects, like men of diſcernment and writers of abilities? When the moſt diſtinguiſhed characters in literature and excellent morals are neglected, and ſuffered to pine in want, in countries abounding with opulence and every ſpecies of luxury; when truth, honour, probity, and every laudable virtue is nearly extinguiſhed, and princes and nobles are only famous for diſſipation, immorality, or frivolity, it may be depended on, that ſuch a corrupt country is on the brink of deſtruction, and though mean temporary expedients may blind and oppreſs the people, and retard, for a time, the entire fall; yet it is inevitable. Had *Louis Sieze* been more vigilant, and had he attended more to the wiſe preſcience of literature, than to the flattery of corrupted and corrupting ſycophants, who always purſue their own intereſts, that worthy, well-intentioned monarch's fall and death could not have happened; nor any of the horrid cruelties that ſucceeded the French revolution. Learning and ſagacity are miſchievous weapons when provoked by contempt and want. A few thouſands annually preſented from the *royal purſe* would make the *weeping face* of ſcience ſmile, and his Majeſty would be immortaliſed, not as the nominal, but as the real lover and protector of the fine arts. *Louis Quatorze* knew this ſecret, and has left inſtitutions at *Paris*, that will ever be reſpected by all poſterity; however civil diſcords may, for a time, obſcure their luſtre.

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* It was figured by the Egyptians like two ſerpents knit together in the middle, which knot was called Hercules's knot. This wand, as alſo the harp, was given to him by Apollo, wherewith he had power to bring ſouls out of hell, and to caſt any one into a ſleep. Vid. *Serv.* in Æn. viii. 138. and Pliny ix. 3.

uſual, to offer their payers, in hopes of dreaming what might prove beneficial. A juggle not unlike *modern magnetiſm.**

XIV. In coins familiar to Alcilia. The head of health, and the image expreſſes fickneſs or ill-health, adminiſtering the ſerpent, the ſymbol of Æſculapius, as a remedy, with much devotion, from that beautiful figure.

Explication of Plate III. of the Hiſtory of Medicine.

I. Æſculapius carried to Rome, and a thenſa, or divine rites, decreed by Cæſar. A ſerpent is ſeen placed on an altar. Hiſtory teaches, that Æſculapius was carried in the form of a ſerpent from Epidaurus to Rome, &c. Before Chriſt 291 years, in the year of the world 3693, in the 122d Olympiad, and 463 years from the building of Rome, as may be ſeen in the Chronological Table in my Hiſtory of Medicine in *Schola Medicinæ*, &c. This medical god was conſtantly implored in ſickneſs; vota, or vows, were made and fulfilled, as may be ſeen from an immenſe number of inſcriptions in my poſſeſſion, taken chiefly from remains found in or near the temples of Æſculapius. But you ſee a ſerpent on the altar—for hiſtory teaches that Æſculapius carried to Epidaurus was in the form of a ſerpent; and it is evident that he was repreſented in this coin, from the laſt coin of the Rubrici; for in it this altar is ſeen with the ſerpent and a ſhip projecting from it. With reſpect to the thenſa decreed to Cæſar, is certain from *Suetonius*; what is therefore wonderful if Rubrius, being diſmiſſed by Cæſar after Corfinium was taken, hoc monumentum ejus gratiam quæſierit? Bergerus.

II. Rev. Hardum deſcribes and illuſtrates this coin, and the celebrated Patinus hath aſſerted an opinion ſomewhat different; Teleſphorus is ſeen in it, who is alſo called Evemerion, to whom Pauſanias relates that the Pergameni ſacrifice. The celebrated Patinus obſerves, that the garment which covers him from the head to the foot is by Martial called Ligonicus Bardocucullus. Cephalon, the prætor, again made it, when the coin was ſtruck.

III. In this is ſeen, that *Adrian* hath hoped and invoked. For it is evident, that he had ſuch miſerable health, that it repented Adrian of his adoption, and a premature death averted caducum parietem.

IV. *Apis*, found under Adrian.

V. VI. The Egyptians and Pergamenians wiſh every ſort of health to Antoninus Pius. The Egyptians indeed Serapis, but the Pergamenians for health and felicity addreſs Æſculapius.

VII. VIII. Serapis.

IX. M. Aurelius. This coin, ſigned in the tenth year, exhibits *Iſis* winding in the form of a ſerpent. The ſerpent is the genius of health.

X. The Nicomedians implore heath to Marcus Aurelius.

Explication of Plate IV. of the Hiſtory of Medicine.

I. Commodus and Æſculapius. Æſculapius, the moſt noted deity of the Pergamenians, without doubt vigilated for the common welfare.

II. Health of the human mind.

III. Serapis conſervator, or preſerver.

IV. Serapis and Iſis.

V. Julianus Serapis and Hermanubis.

VI. Severus with a ſerpent—Æſculapius is known under Adrianople, (ſub Αδριανόπολι.)

VII. Albinus and Minerva.

VIII. Albinus and ſalus, or health.

IX. Caracalla and Geta commend their health to the Pergamenian Æſculapius.

X. Macrius and Salus. Public vows.

Explication of Plate V. of the Hiſtory of Medicine.

I. Eliogabulus and Serapis.

II. Gordianus and Serapis, &c. To the ſecond many things are to be obſerved; and firſt, indeed, I have not read ΕΦΕΣΙΩΝ ΑΛΕΞΑΝΡΕΩΝ as in Patin and Harduinus, but with the copula ΕΦΕΣΙΩΝ ΚΑΙ ΑΛΕΞΑΝΔΡΕΩΝ; ſo that two cities are celebrated in this coin, without doubt—for the Egyptians openly avowed Serapis, as the Epheſians did Diana.

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* This is not a tranſlation, and in many other parts the original Latin is not cloſely adhered to, but in general the explanations are improved.

III. Hoſtilianus: Serapis in a temple.

IV. Gallus. Serapis in a temple. This money was ſtruck by the people of Antioch, as may be ſeen, under the reign of Hoſtilianus, &c.

V. Gallus and Serapis.

VI. Gallus to the ſalutiferous Apollo.

Voluſianus.

VII. In this coin *ſalus*, it expreſſes the peſtiferous lues, or plague. How much this goddeſs hath been fatigued, or tired with vows. There are a thouſand ways to death. Whom the plague hath ſpared, &c. &c.

Valerianus.

Apollo preſerver.

Galienus.

IX. Iſis and Nemeſis. A coin ſtruck by the people of Smyrna.

X. Galienus with Bacchus and Æſculapius, according to many opinions; but it appears to me to be Æſculapius and Hygeia.

PLATE VI.

I. Galienus with Æſculapius.

In the coin ſtruck by the Sidetes---and what ſhall we ſay to the plague, which is related to have been ſo dreadful under the Emperor Galienus at Rome, or in the cities of Achaia, in one day five millions of men died of a ſimilar diſeaſe? *Æſculapius* was then of the greateſt aſſiſtance, and hence it is not wonderful that the Sidetes did ſtamp an impreſſion of him on their coin.

II. Quietus with Apollo the conſervator. As Apollo prefers a branch of laurel to the arrows or bow, it is juſt to ſuppoſe that this refers to medical not warlike aſſiſtance; but more on this in *Bergerus*.

III. Probus and Salus.

IV. Diocletianus with Iſis.

In this place I will premiſe in a few words, that the Iſis of the Egyptians was the ſame with the Ceres of the Greeks, and hence the Egyptians, in the twelfth year of the Emperor Diocletian (for that is evident from the additional numeral letters L. IB. as Achilleus rebelled before the eighth year, and was overcome by Diocletian; the famine, or want, which came afterwards, this coin exhibits elegantly, &c.

V. Iſis with Horus.

The Greeks, when they ſpeak of Horus, always interpret him as Apollo. Thus Herodotus, lib. ii. c. 144. relates, Ωρον τον Οσιριος παῖδα τον Ἀπόλλωνα Ελληνες ονομαζουσι. Horus, the ſon of Oſiris, whom the Greeks call Apollo, and c. 156. Αιγυπτιστὶ δε Απολλων μεν Ωρος. And Apollo is alſo, in the Egyptian, called Horus.

VI. Iſis.

VII. Apis embalmed according to the manner of the Egyptians, as may be ſeen in many real antique mummies that have reached our time.

VIII. Oſiris, or the author of health.

In *Diodorus*, lib. i. p. 11. they ſay that theſe gods (the ſun and moon) govern the univerſe, nouriſhing and performing all things, at three periods of the year, in an inviſible manner peforming a circuit, viz. in the ſpring, ſummer, autumn. Which, although they have a very different nature, yet make the year with the beſt conſent efficient, or with an excellent conſent every thing good is produced by the changes in the year, &c.

THESE plates ſhew the prieſtcraft and credulity of the Egyptians, Greeks, and Romans, with the dignity of their medical deities, whom they reverenced with as much faith, fear, and hopes, as any religious fanatics ſince their times. Irreverence to their gods was puniſhed with death, or univerſal deteſtation, as *Socrates* experienced, and as may be ſeen in the orations of *Demoſthenes*, when he wiſhed to render an enemy odious in the ſight of the people, &c.

After the *Hiſtory*, and a *Chronological Table*, giving, in a ſhort view by columns, the periods when the principal philoſophers, phyſicians, and other eminent perſonages, flouriſhed; commencing from the ſuppoſed beginning of the world to the Peloponneſian war, and from that time to Juſtinian, from thence to the preſent time. A Conſpectus of the whole work appears; which is of itſelf a ſhort ſyſtem of anatomy and phyſiology.

IN THE ANATOMICAL PART.

Plate I. contains a very elegant male and female figure, drawn by Mr. Edwards, of the Royal Academy, and engraved by that excellent artiſt Mr. Sharp, to explain the external parts, &c.

Plate *I. Two figures with the references to the former plate oppoſite to the page of *Greek* deſcription, and referring to the *Latin* deſcription, &c.

Plate II. ſhews the conſtituent parts of the human body, with the deſcription in *Greek* and *Latin*.

Plate III. is of the bones and their junctures, connections, &c. with *Greek* and *Latin* deſcriptions.

Plates IV. and V. ſhew the front and back view of the human ſkeleton, with *Greek* and *Latin* deſcriptions.

Plate VI. deſcribes various bones with *Greek* and *Latin* deſcriptions.

Plate VII. ſhews a ſide view of the human ſkeleton, a fœtal ſkeleton, with the differences between the infant and adult, and the teeth.

Plate VIII. exhibits the parts compoſing muſcles, examined with a microſcope, as an introduction to myology.

Plate IX. a front view of the muſcles, the references in the oppoſite ſingle page, with the *names*, *origin*, *inſertion*, and *uſe*, in three columns diſtinctly exemplified, ſo that the ſtudent with the greateſt facility, eſpecially if he diſſect with the plates before him, muſt obtain a perfect knowledge of all muſcular motion.

Plates X. XI. XII. XIII. XIV. XV. XVI. ſhew the ſecond, third, and fourth layer of muſcles, in the fore and back view, with references in ſingle pages to each plate.

Plate XVII. A view of the muſcles of the whole body laterally.

Plate XVIII. ſhews various muſcles not reducible under the former nine plates. After this the myology is completed with the manner of diſſecting muſcles, and the different ſubjects neceſſary to be choſen by the anatomiſt for preparing the bones, muſcles, nerves, injections, &c. with many uſeful rules to be obſerved in anatomical ſtudies and diſſections.

Angiologia, or the knowledge of veſſels, which are arteries, ſanguiferous veins, and lymphatic veſſels; theſe are all perſpicuouſly exhibited in three columns, in a manner entirely new.

Plates XIX. XX. are front and back views of the arteries of the whole body, as they appear when injected.

Plate XXI. is a view of all the veins of the whole human body, with a reference in one page ſhewing the origin in extremities, their various directions and terminations, &c. in the manner the blood paſſes from all the veins to the *cava*, from a drawing of Mr. *Paillou*'s.

Plate XXII. is of the lymphatic glands and lacteal veſſels, by which is ſhewn how nutrition is performed: by lacteal abſorption and paſſage of the chyle to the thoracic duct, ſubclavian vein, &c.

Plate XXIII. is a whole elegant figure drawn by Paillou, repreſenting the lymphatic glands and the lymphatic veſſels of the whole human body, explained in three columns under the heads of *name and ſeats of glands*—*vaſa inferentia*—and *vaſa efferentia*, by which a complete knowledge of the whole lymphatic ſyſtem, its diſeaſes, &c. is eaſily acquired.

ADENOLOGIA, or an EXPLANATION of the GLANDS,

Contains all the ancient opinions and modern diſcoveries of the glands of every ſpecies, their ſituations and uſes.

A conſpectus of all the glands in three columns, under the heads of name and ſeat, habit, function. This mode of exhibition is entirely new, and greatly abridges the ſcience of Adenologia.

NEUROLOGIA, or DOCTRINE of the NERVES.

The ancient and modern opinions of the nerves, containing extracts in Greek and Latin from *Rufus Epheſius*, Herophilus, Eraſiſtratus, Galenus, Oribaſius, *Veſalius*, Euſtachius, *Leeuwenhoek*, Willis, *Vieuſſens*, Winſlow, Monro, ſen. Whytt, Haller, Meckel, Zinn, Moſcati, Pater de la Torre, Prochaſka, Alex. Monro, jun. Walker, and ſome new ideas of the preſent author on the nerves, &c.

Plate XXIV. is a complete ſection, as large as life, of the baſis of the cranium, ſhewing the origin and direction of the nerves to the ſenſitive organs, &c. through the foramens from the brain.

Plate XXV. ſhews the baſis of the brain, or cerebrum, with the veſſels.

Plate XXVI. The plexus of the cerebrum, corpus calloſum, corpora ſtriata, thalami nervorum opticorum, pineal gland, &c. &c.

Plate XXVII. The arteries of the brain, &c. of the full ſize.

Plate XXVIII. Of the medullary ſpine, pineal gland, &c. a complete treatiſe of the brain and all its parts, with a comparative view of the weight of the brains of moſt animals, with the weight of their bodies, including *man*, &c. to aſcertain the different quantity of brain each animal poſſeſſes compared with man; in which it is proved that the human brain is not the largeſt, as vulgarly received.

Of the cerebellum, medulla oblongata, ſpinalis, &c.

Plate XXIX. and XXX. exhibit the ganglions of nerves and funiculi.

Plate XXXI. ſhews the component parts of nerves magnified by a microſcope in thirteen figures. This inveſtigation expoſes many erroneous doctrines of the nerves.

The veſſels of the cerebrum, cerebellum, and medullary ſpine.

Plate XXXII. as large as life, ſhewing the intercoſtal cervical nerve, or ſympatheticum magnum, ganglions, &c. proceeding to the heart, diaphragm, &c. This elaborate demonſtration, in concert with others, ſhews evidently, how one *viſcus*, or part being affected by irritation, or compreſſion, may affect others, even remote from the ſeat of diſeaſe.

Plate XXXIII. A reference plate to the foregoing, as large as life.

Plate XXXIV. ſhews the nerves of the right ſide going to the heart, with two more figures of ganglions, &c. nerves, &c.

VOL. II. *NEUROLOGIA continued.*

Plete XXXV. large as life, or further explication of Plate XXXIII. &c. of arteries, veins, nerves, ganglions, muſcles, &c. nervous ramifications, &c.

Plate XXXVI. A complete view of the nerves of the thorax and abdomen, &c. large.

Plate XXXVI. (2) A reference plate to the former, large as life.

Plate XXXVII. ſhews the cæliac ganglion, meſenteric plexus, and right hypogaſtric nerves, with veins, arteries, vertebræ, &c.

Plate XXXVII. (2) is a reference plate to the former, full as large as the adult.

Plate XXXVIII. Nervum ſympatheticum magnum and par octavum in the left ſide.

Plate XXXVIII. (2) The reference plate to the former, large as an adult.

Plate XXXIX. exhibits the nerves of the liver and ſtomach from the conflux of the right and left cæliac ganglions, &c. &c. exhibiting how the ſtomach may affect, or be affected by diſeaſes of other parts.

Plate XXXIX. (2) Large reference plate to the laſt. The mode of diſſecting and preparing the nerves for anatomical demonſtration fully explained. Theſe repreſentations of all the nervous ſyſtem are moſt beautifully drawn and engraved, and the references in number amount to ſome thouſands. Theſe minute demonſtrations will gratify the moſt inquiſitive and contemplative mind by a ſeries of real facts of the ſupreme government and influence of the brain and nerves, as miniſters of feeling and all human ſenſations, ſympathies, antipathies, &c. &c.

SPLANCHNOLOGIA

Treats of the integuments, viſcera dedicated to forming chyle, ſecreting urine, ſemen for generation, the organs of breathing, of the circulation of the blood, and laſtly, the organs of the ſenſes.

Plate XL. ſhews the internal parts compoſing the thorax and abdomen, with references in one page arranged in three columns under the heads of name and ſituation—ſtructure, connections, and uſes; by which the contents of the thorax and abdomen are briefly and clearly explained, ſo as to leave an impreſſion on the mind not to be eaſily effaced.

Plate XLI. ſhews the abdomen, the inteſtines, &c. being removed. The liver, gall bladder, pancreas, ſpleen, kidneys, ureters, bladder, large veſſels, &c. are repreſented in *ſitu naturali*.

Differences between the adult and the embryo.

On the EYE and DOCTRINE of VISION.

Plate XLII. ſhews the arteries, tunics, and humors of the eye in five figures, which prepares the mind for the ſkilful conſideration of eye diſeaſes.

Plate XLIII. ſhews the nerves of the bulb of the eye, veſſels, &c. ganglion, opthalmicum, with the ciliary nerves, &c.

Plate XLIV. exhibits the membrana coronis ciliaris, by which is joined the chryſtalline lens with the vitreous humor, &c. their minute arteries—Meibomius's glands, viæ lachrymarum, &c. in ten figures.

Plate XLV. Origin of the tunics of the eye, reticulum choroidi inſtratum, plicæ proceſſuum ciliarium, or plaits of the ciliary proceſſes, annulus, or ring of the iris, &c. in ſix figures.

Plate XLVI. Muſcles of the bulb of the eye in five figures.

Plate XLVII. The repreſentation of the heart injected with wax in two figures, with the auricles, large veſſels, &c. concerned in the circulation of the blood.

Plate XLVIII. explains the circulation of the blood, the valves of the heart, &c. as the valvulæ mitrales, tricuſpidales, &c. &c.

An epitome of anatomy for the junior ſtudents, and for thoſe intended only to practiſe ſurgery, &c. in which is abridged all that is neceſſary to be known for the purpoſes of practice, particularly for ſurgery, and midwifery, &c.

Hygrology, or the doctrine of the fluids of the human body, whether ſecreted, or not ſecreted.

PHYSIOLOGIA.

The explanation of the functions and actions of all parts of the living or animated human body. Anatomy demonſtrates all the parts in the dead body; phyſiology conſiders and explains the manner in which the living body performs the functions neceſſary for life and health, &c.

The phyſiology of the human body is greatly abridged, and yet is ample, as to utility. It is ſhewn in a new point of view in three columns, from which are excluded all idle hypotheſes and vain ſpeculations; under the heads of phyſiology—ſcholia—pathology—by which at one view are ſeen the doctrines of the parts and functions, the real cauſes of their action, as far as human underſtanding extends, and their appearances after death from diſeaſes, which form the foundation of morbid cauſes, and rational plans of cure.

Plate XLIX. ſhews the pharynx and larynx, or the organs of ſwallowing, voice, &c. in many figures from diſſections fully explained.

Plate L. Of the organ of hearing.

Plate L. (2) Reference plate to the former.

Plate LI. Of the omentum, inteſtines, &c. in which ſome errors are corrected.

Plate LII. Second plate of the ſame with the bile, ducts, &c. to ſhew the courſe of the bile.

Plate LIII. The genital parts of men, arranged in a conciſe manner.

Plate LIV. The genital parts of women, external and internal.

An epitome of phyſiology for junior ſtudents, containing the principal objects neceſſary to be remembered in the practice of phyſic.

The plates in the Schola Medicinæ, including reference plates, amount to ſixty-ſix, elegantly engraved by capital artiſts, among whom will be found Sharp, Royce, Cooke, &c. The bones and muſcles, arterial and venal ſyſtems, are particularly deſigned for ſurgery ſtudents, and the whole work for thoſe who wiſh to become learned phyſicians. The various plates of the nerves, their ganglions, connexions, plexuſes, &c. &c. of all the principal parts of the human body, are particularly intereſting to every phyſician who would wiſh to account for the various ſymptoms of diſeaſes, either directly of parts, or indirectly by ſympathy. In theſe minute inveſtigations many hundreds of references in the reference plates lead the ſtudious pupil *gradatim* to a profound knowledge of the minuteſt cauſes of all different human ſenſations and ſigns of diſeaſes, arranged and exhibited in ſuch a manner as to leave, it is hoped, a durable impreſſion on the mind, ready on all to be uſefully applied to medical practice.

In ſhort, the *Schola Medicinæ* is calculated to anſwer the moſt ample purpoſes of inſtruction; to render moſt other books unneceſſary, as far as *facts* and *juſt reaſoning* extend; and, to early fortify the juvenile mind againſt thoſe frothy conjectural effuſions, which too often, *pro tempore*, injure the Pæonian art. It muſt be ſubmitted to the diſcernment of the learned and candid, to determine on its probable utility, by conſidering the labour of the arrangement and execution, and by comparing the practical uſe of the *Schola Medicinæ* with any other ſingle production extant.

The methodiſing of the work, its gradual execution, the ſlow progreſs of the drawings and engravings, with which the letter-preſs was frequently obliged to keep pace, have conſumed a period of above twenty-five years, as far as the author's other writings, and an extenſive medical practice, would permit. It was written in *Latin*, that it might become more univerſally uſeful to all nations. The ſtile, it is hoped, is conſpicuous, conciſe, and intelligible; thoſe who have neglected their *Latin*, may, perhaps, find this performance uſeful in regaining, what may, in ſome meaſure, have been loſt, and the junior ſtudents, it is hoped, will be incited to purſue their ſtudies in the learned languages, which will amply reward their labours, and give additional luſtre to that profeſſion, in which they ſhould attempt excellence as members. It is the duty of every phyſician to leave the art better than he found it, by dedicating to ſtudy the idle hours conſumed in amuſement: for diſſipation is always inimical to ſerious reflection.

The neceſſity and utility of this work, it is preſumed, will be acknowledged, when it be conſidered, that no one book comprehending anatomical plates, with references to each in one page of letter-preſs, and a complete phyſiology and pathology exhibited at one view, by *columns* that run parallel, has ever yet been publiſhed. The labour of conſulting various writings ſeparately would require ſuch a collection, that the expence would be enormous, and the advantages to pupils doubtful, through the great errors in their arrangement. Many writers of former works have rather wiſhed to appear ſplendid than uſeful, and much time has been loſt in endleſs repetitions of flying from the *copper-plate* to the *references*; from the *references* to the *copper-plate*: the tediouſneſs of which mode of conveying inſtruction is often conſidered by ſtudents ſo prolix or difficult, that ignorance is preferred, frequently, to ſcience, when obtained only by ſuch laborious means. All theſe difficulties are now obviated. In the preſent performance, all that is contained in each plate is compreſſed into *one* conciſe page of letter-preſs, oppoſite, by being printed in a ſmall type, caſt expreſsly for the purpoſe, and each page is divided into *columns*, in ſuch a manner, as not only to give an exact deſcription of the parts viewed, but likewiſe their connections, uſes, &c. The reſult of the moſt tedious and laborious ſtudy is contained, frequently, in a ſhort ſentence, or ſelf-evident propoſition; thus is reduced, into a ſmall compaſs, all that is neceſſary to be well known or remembered, when applied to the *medical*, *chirurgical*, or *obſtetric* art. By theſe means hath *ſixty ſix* pages contracted all that is neceſſary to be comprehended in anatomy, except, that the *nerves*, their *ganglions*, &c. have required longer deſcriptions. Beſides this conciſe and uſeful arrangement, there is an *abridged* anatomy and phyſiology, containing the whole modern knowledge. To render, however, the work more important, it contains a more diffuſive deſcription, for the uſe of lecturers, teachers, or profeſſors, planned and executed in ſuch a manner, that all which is uſeful in the large volumes of anatomical writers, &c. will be found in this work, without that prolixity for which many authors and lecturers have been ſo juſtly cenſured, by all who would wiſh to facilitate inſtruction, and render the deepeſt erudition of the art acceſſible to all capacities. To all junior ſtudents it may be an introduction previous to hearing lectures, and afterward, the companion of the diſſecting room; to thoſe who have paſſed through their ſtudies, it may prove a very conciſe and uſeful recapitulator, by the exhibition of thoſe anatomical preparations and facts, from which all actual and demonſtrative knowledge was acquired requiſite for ſucceſsful practice.

The practical Application of the Schola Medicinæ.

I. For obtaining anatomical knowledge and phyſiology.

On viewing the print, with or without anatomical preparations, let the engraving be examined, or compared with the *real* ſubject, and the written deſcription, connection, and uſe of the part, be read in *Schola Medicinæ*: by this procedure, it is impoſſible not to eaſily comprehend, in a very ſhort time, the anatomical ſtructure, ſituation, and uſe of every part of the human body.*

II. In *phyſiology*, let the pupil read the deſcription and uſe of any part or function in the *firſt column*, and the *ſcholia*, or reaſoning, if any, in the *ſecond column*, by which is readily acquired the *nature*, *action*, *power*, and *utility*, of any part, or parts, during *life*.

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* Words and things are eaſieſt taught, and beſt comprehended, together. The attainment of all languages, arts, and ſciences, is quicker acquired by ſuch means, than by the common ſlow methods of communicating knowledge, which oftener darken than enlighten. *Deſcriptions*, however well expreſſed, cannot convey clear ideas of diſeaſes ſo immediately, as *a view* of the ſick. At the St, Mary-le-bone Infirmary, I have *claſſed* diſorders in a new manner, in *ſeparate* wards, and on the *door* of each is written *male*, *or female*, *pulmonic*, *fever*, *chronic*, *ſmall-pox*, *chirurgical*, *venereal*, *caſual*, *childrens*, *covaleſcent*, *&c. &c.* The name at the *entrance* gives the *genus* of the diſeaſe, and the numerous ſick, within each airy ward, give the individual varieties of *every ſpecies*. The preſcriptions taken, in the medical department, amount annually to above 20,000: which extenſive practice, arranged in the foregoing manner, affords pupils a rapid opportunity of comprehending the *routine* of medical practice, when united with other advantages. Mr. *White*, obligingly attending to many hints on the common defects in the ſtructure of hoſpitals, delivered by me, has diſplayed an uncommon judgment in the plan of this humane infirmary, calculated to anſwer all the beneficent purpoſes of the noblemen and gentlemen, who are guardians of the poor of this moſt opulent and liberal quarter of *London*.

III. In *pathology*, the knowledge of the cauſes and effects of diſeaſes will be eaſily aſcertained by directing the eye to the *third column* of any part, where will be found the appearances, from *diſſections*, after death. Thus blending, in one view, the actual living functions, the reaſonings reſulting, and the viſible defects of all the parts of the human body, *poſt mortem*, a complete knowledge of the *real* cauſes of moſt diſeaſes may be acquired, without having recourſe to the imaginary conceits of dubitable hypotheſis.

IV. In the rational practice of phyſic, ſurgery, &c.

The previous ſcience already deſcribed prepares the medical practitioner to reflect ſenſibly on the poſitive danger, difficulties, or probable facility in the treatment of diſeaſes and performing operations. With this rational foreſight, and a perception of the reſiſtance to be expected in any diſorder, united to the previous and preſent ſtate of the patient's conſtitution, the indications of cure and contra-indications are diſcoverable, and apt remedies may be judiciouſly preſcribed, from their known and experienced power and efficacy. To attempt healing the ſick without comprehending the complicated and real cauſes of diſeaſes, determined by anatomical, phyſiological, and pathological facts, is like attempting to ſail in a ſhip on the ocean without ballaſt, rudder, or compaſs. It is random quackery to depend on any particular noſtrum, or remedy, in the cure of different diſorders; for, if it be harmleſs, the afflicted may be loſt for want of an active remedy; if violent, it may kill by raſh or injudicious application. By penetrating, however, into the origin of diſeaſes from diſſections and experience in former inſtances, and by having concluded from the *appearances after death* what could have produced the effects obſervable in life; a phyſician will not only be able to proceed in practice ſatisfactorily, but judge of paſt profeſſional errors, and form an accurate and ſagacious eſtimate of all future inquiries and improvements. Such a well-informed practitioner in medicine, actuated by logical reaſoning, will cautiouſly examine novelties, but will be always open to conviction. The flights of fancy may amuſe, but in all important concerns reaſon ſhould be ſatisfied. The plauſible deceptions which ſo often diſgrace the medical profeſſion, will be perceived with a glance of the eye; the mind will reflect with the rapidity of a flaſh of lightning on the competency or incompetency of human intellects in whatever may be the object of reſearch. The deluſions that lead the indolent or ſuperficial, make no impreſſion on ſuch a character. If he be ſtrictly an honeſt and diſcerning man, truth is embraced and merit reſpected wherever diſcoverable; profeſſional prejudices, duplicity, and fallacy, are detected, expoſed, and rejected. If ſuch honourable members of ſociety have enemies, they can only be the enemies of truth and integrity. It is the ſincere wiſh and hope of the author, that every medical ſtudent will induſtriouſly ſtudy the profeſſion, act with great probity, humanity, and honour, and ſeriouſly conſider the important truſt committed to his charge, after the regular ſtudies the art requires. The preſervation of health, the power often of life and death, is ſubmitted to medical care and ſkill. To aſſume an air of wiſdom and be ignorant, or incapable, is an heinous offence againſt Heaven and all human ſociety; to be as ſkilful as the art admits, is an indiſpenſable duty. If hoſpital pupils avoid trifling purſuits, and follow the methods I ſhall ſhortly recommend to obtain real knowledge, and if they keep a journal under the heads of *name, age, ſymptoms, diſeaſe, remedies, and obſervations*, divided into columns, according to the form in uſe at the *St.*

Mary-le-bone Infirmary, it is next to impoſſible for the ſtudious not to well comprehend the whole *arcana* of practical medicine in the ſpace of two or three years, from whence they may proceed to the univerſity with credit. It ſhould, however, be recollected, that univerſities are generally under the dominion of the ſacred theological profeſſion, and the diſcipline obſerved, agreeably to the ſtatutes, is more adapted to the purpoſes of religious faith, or claſſical erudition, than medicine. Seven years are conſumed in obtaining the degree of Maſter of Arts, in which acquiſition no medical ſtudies whatever are purſued; though every other branch of academical learning may be obtained in the higheſt degree of perfection. Any Maſter of Arts may enter on the medical line, have a Bachelor of Phyſic's degree in one year, and a licence *medicinam exercere per totam Angliam*. How capable any ſtudent may be to viſit the ſick, and preſcribe remedies in all diſeaſes, after ſuch an education, is not difficult to determine. It is hoped, however, that a more rational mode of ſtudy will be eſtabliſhed, and that *Schola Medicinæ* may prove uſeful in aſſiſting ſuch a noble example of neceſſary reformation; for which the work was principally written, in the author's apartments at St. Alban's Hall, Oxford. As a book of information on the ſubjects of which it treats, it may be uſeful to the ſtudents of law, phyſic, and divinity, to philſophers, and even the nobility and gentry: for every gentleman and magiſtrate ſhould have ſome general knowledge of the human body. To profeſſors of learned univerſities it ſolicits protection, as it is preſumed it may greatly tend to abridge their labours. The mode of procedure, recommended in *Schola Medicinæ*, is directly contrary to the common univerſity plans of medical education; for theſe ſay, *ubi philoſophia deſinit, ibi medicina incipit:* but it is inſiſted on, that ſtudents ſhould be firſt inſtructed in anatomy, and familiariſed to practice by a ſtudious and accurate obſervation of the ſick in all poſſible ſituations of diſeaſe. After receiving the numerous facts with diligence, that an extenſive medical practice preſents, the ſtudent may inquire, at leiſure, into the cauſes and effects he hath actually obſerved, with all the various phenomena of nature at the univerſity. *Ariſtotle* has juſtly aſſerted, *nihil eſt in intellectu quod non ante fuit in ſenſibus*. To adviſe or teach pupils to reaſon and account for what they have not ſeen, or to meditate on any viſible ſubject by only written deſcriptions, is nearly as ſagacious, as to attempt to teach a perſon born blind the names, tints, and different ſhades of colours; or thoſe born deaf the ſweet modulations and muſical chords, that produce the moſt raviſhing harmony. Who can expect that any perſon ſhould be enabled to diſcern and comprehend the beauties, logical arrangement, and perfections of literary compoſition, who is ignorant of words, ſentences, and grammar? The practice of anatomy, and of all the branches of medicine, is the grammar to the art of phyſic, and leads the mind ſafely to the more minute inquiries and ſublimer ſtudies. It is proceeding directly *ad rem*; whilſt all other modes, more or leſs, are circuitous, doubtful, or fallacious, and often terminate in a vain ſuppoſition of actual knowledge where little exiſts. *Morbi non verbis curantur, ſed remediis*; the general and particular application of which can only be obtained by deep reflection, the avoiding prejudices, and by long experience. Thoſe who know not theſe advantages may affect to cenſure thoſe who do; but by ſuch cenſures they only proclaim their own ignorance of that art which it is their ſerious duty to better comprehehnd. All degrees of human wiſdom and merit are relative. It is by compariſon that the beauties and deformities of nature and art are diſcoverable to the diſcerning, experienced, and contemplative. To an ignorant perſon of no taſte, the ſculpture of the rudeſt block, or the vile daubing of a ſign painting, is little inferior to the works of a Phidias, or an Apelles. Whoever will take the trouble to examine all other productions on anatomy, phyſiology, and pathology, and compare them with the preſent, will be convinced, that this is better adapted, as a ſingle book, for ſtudents, than moſt others. It is not intended to depreciate any learned works, for there are many excellent, and it is from ſeveral that the preſent offering to the learned, in part, has been ſelected, and delivered in a form different from all that have preceded, to facilitate medical ſtudies. A greater excitement to induſtry cannot be conceived, nor better expreſſed, than by the great *Hippocrates*, Ο βίος βραχὺς, ἡ δὲ τέχνη μακρὴ, ὁ δὲ καιρος ὀξὺς ἡ δὲ πεῖρα σφαλερὴ ἡ δε κρίσις χαλεπή.— "*Life is ſhort*, the art *long*, the *occaſions momentous, judgment difficult*," &c. It will therefore be of the greateſt importance to eſtabliſh all uſeful truths as early in life as poſſible, and to abandon and ſuppreſs all uſeleſs inquiries as deviations from the main points to be conſidered in practice. The different ſtudies recommended in *Schola Medicinæ* having been fulfilled, long *experience* afterwards forms the GREAT phyſician, and he will be the GREATEST, who is convinced, through life, he has SOMETHING TO LEARN.

Errata, &c. in the Latin Schola Medicinæ, are few, conſidering the nature and extent of the work, and the author's continual engagements in the practice of the medical profeſſion. The learned reader will perceive ſome few typographical errors, which will be eaſily rectified; in the note, page xxxv, he will find *Hæc* inſtead of *Hæ*, &c.

Pag. Linea. Lege.
29——12——*per.*
44——53——*extrahendæ.*
Ibid. 55——*adfundatur.*
45——47——*dilatato.*
47——31——*adducunt.*
52——32——*obturatores.*
101——44——*conſiſtit.*

In the tranſlation.

xvi.—12.——*ready on all occaſions.*

In Plate I. there are no references, becauſe they would have deſtroyed the beautiful engraving of the celebrated Mr. Sharpe; but there is a *reference* plate added of the beſt figures extant for the external parts. If a compariſon be made, it will exhibit the ſuperiority of our plate to the other taken from *Kulmus.*

In the ſide view of the muſcles no letters appear, but a reference plate is added to the Engliſh tranſlation, as likewiſe another to the *veins*, to prevent letters being engraved on the drawing made by Mr. *Paillou*, which may likewiſe be compared with that taken from *Euſtachius.*

PLATE I.

On the Names of the external Parts and Diviſions of the Human Body.

A.

VIII. The human body is divided into the head, trunk, and extremities.

The face and the parts covered with hair is called the head.

The parts of which are:

1. *Sinciput*, or anterior and ſuperior part.
2. *Occiput*, or poſterior part.
3. *Tempora*. The temples, or ſides.
4. *Vertex*, or crown of the head.

b The face.

5. *Frons*, or forehead, under the ſinciput.
6. *Nares*, the noſtrils from which mucus.
7. *Oculi*, the eyes under the eyelids.

Palpebræ, or the eye-lids.

Cilia, or eye-laſhes, the outer edge of the eye-lids, on which hairs grow.

Canthus major, the great angle of the eye towards the noſe.

Canthus minor, the ſmaller angle of the eye towards the temples.

8. *Malæ*, the cheeks, which when inflated are called *buccæ*.
9. *Os*, the mouth; it divides the lips, and is that empty ſpace which extends from the lips to the fauces internally.
10. *Aures*, the ears; the lobe is the extremity.
11. *Mentum*, the chin in the middle of which the dimple.

c *Collum*, or neck, is immediately below the head.

12. *Jugulum*, or throat, is the anterior part.
13. *Cervix*, is the poſterior part.

B.

IX. *Thorax*, between the neck and abdomen; in which the heart, lungs, &c. are ſeated.

e *Sternum*, or pectus.

⊙ *Mammæ*, or breaſts, carneous eminences on the anterior part of the thorax.

Papilla, or nipple in the extreme part.

(*Scrobiculus cordis*.

() *Scapulæ*, or broad bones lying behind, called ſhoulder blades.

C.

X. *Abdomen*, or the inferior belly, is ſituated between the thorax and pubis; in it are contained the liver, ſpleen, ſtomach, inteſtines, pancreas, kidneys, bladder, &c.

g The ſpace above the navel is called epigaſtrium.

The extremities of the ſhort ribs are terminated by cartilages.

† *Hypochondria* are immediately under the ſhort ribs.

h *Umbilicus*, or the navel, is the place where formerly the umbilical veſſels paſſed to nouriſh the fœtus in the gravid uterus.

The middle part of the navel is called acromphalon, the ſurrounding ſkin *vetula*, when ſhrivelled, ſignifying old age.

i *Hypogaſtrium* is below the navel.

k The part lower down to the pudenda is called pubes, or ephebæon.

l The bones of the back-bone are called *vertebræ*, and the whole aſſemblage of them is the ſpine; (m) the lower part is called *lumbi*, or *loins*; (n) the laſt bone is the *os ſacrum*, called *hypoſphondelon*, which is terminated by the *coccyx*.

o On the ſides and below the loins poſteriorly are the nates, or poſteriors.

q *Ilia* are the cavities between the coſtæ, or ribs, and the femur, or thigh.

r *Inguina*, the groins, are next the upper part of the thighs.

D.

XI. The *arms*, or ſuperior extremities, extend from the ſhoulders.

s *Humerus* is the uppermoſt part of the brachium, or arm.

t *Axilla*, or *arm-pit*, is the cavity under the articulation of the humerus.

u *Cubitus* reaches from the elbow to the wriſt.

v *Gibber*, or *olecranon*, is the poſterior protuberant, ſharp end of the cubit, called elbow.

w *Carpus*, the *wriſt*, from the lower end of the cubit to the metacarpus.

x The flat, broad part of the hand is called *palma* in Latin, and *metacarpium* in Greek.

‡ *Dorſum manus*, the back of the hand.

§ *Vola manus*, the inſide or palm.

Digiti, the fingers; 1. Pollex, the thumb; 2. Index, the fore finger; 3. Medius, the middle finger; 4. Annularis, the ring finger; 5. Little finger.

E.

XII. *Pedes*, the *feet*, are the lower extremities.

y *Femur*, the thigh.

z *Genu*, the knee, is the connection of the thigh with the leg.

a *Poples*, the *ham*, behind and under the knee.

b *Tibia*, the ſhin-bone, is the anterior part of the leg.

c *Sura*, the *calf of the leg*, is the poſterior fleſhy part of the leg.

d *Calx*, the *heel*, is the poſterior round part of the foot.

e. Below that is the hollow of the foot.

f Then comes *planta*, or the *ſole* of the foot.

g Oppoſite, on the upper part, is the *tarſus*.

h *Metatarſus*.

i *Digiti*, the toes of the foot.

PLATE II.

Of the conſtituent Parts of the Body.

XIII. The human body conſiſts of *ſolids* and *fluids*.

The ſolids are:

I. A fibre is the moſt ſimple part of the body, deſtined for the conſtruction of all the other parts.

Fibres are divided in *longitudinal* A, *tranſverſe* B, *oblique* C, *orbicular* D, *arched* E, *angular* F, *ſpiral* G.

From many ſimple fibres longitudinally and cloſely applied to each other ariſes a ſimple *lamina*.

II. *Tela celluloſa*, or cellular texture; by the union of many ſimple laminæ is produced the *tela celluloſa*, which gives origin to almoſt all parts of the body.

a Is this texture ſeen by the microſcope.

b The texture with large cells, to receive the adeps, or fat.

III. *Membrane*, is a white, flexile, thin, and expanded part.

a Cloſer cellular texture, like II. produces membrane III.

IV. *Tunica*, or *coats*, are membranes ſo turned and formed as to make various cavities; but more properly thoſe that conſtitute tubes or veſſels.

Veſſels are long, conic, membranous ducts, through which the fluids of the body are conveyed, and are named as follows:

V. *An Artery*	Is a conic, pulſating veſſel, carrying the blood from the heart to every part of the body; is compoſed of five coats.
VI. *A Vein*	Is a veſſel without pulſation, returning the blood and other fluids from all parts of the body towards the heart.
VII. *Lymphatic Veſſels*	Are ſmall pellucid tubes provided with valves, they abſorb from moſt parts of the body the coagulable lymph, and carry it to the thoracic duct.
VIII. *Valves*	Are ſmall membranes in the heart and veins, and ſhut like flood-gates, that the blood and other fluids may not repaſs.

V. *Arterial tunics*, (*a*) the firſt and outer coat they take from the cavities.

b The ſecond coat is next the former.

c The third is the *muſcular coat*, made of ſpiral muſcular fibres, whence the pulſe originates.

d The fourth coat is made of the *cellular texture*.

e The fifth is the laſt and internal.

The *venal coats* VI. have the ſame ſtructure, except the muſcular coat.

All thoſe tunics are nouriſhed by ſmall arteries, veins, and receive their ſenſation from nerves.

IX. The branches of *arteries* and *veins*. A the artery. B the vein. C the ligature in both to ſhew by the diſtention the courſe of the blood. D the vein ſwelling below the ligature. E the artery detumefying. *e*, *e*, *e*, *e*, the connections of the ſmall ramifications.

VII. Exhibits a *lymphatic* or conglobate gland injected with mercury.

A the lymphatic veſſel. B the lymphatic gland; a heap of veſſels.

X. *Nerves*, are white, hard, elaſtic, and very ſenſible parts; they originate in the brain, cerebellum, and medulla ſpinalis, and are diſperſed over the whole body; by them motion and feeling is produced.

X. The nerve; A the outer coat. B the nervous filaments.

XI. The *muſcles*, are organical parts, called fleſh, and give motion to the body, they are compoſed of fibres, arteries, veins, and nerves, lymphatics, &c.

Tendons, are the ends of the muſcles, called heads or tails; their fibres are tougher, ſtronger, and compacter than in the muſcles, and of a white ſilver colour.

XI. A double muſcle; A, B, C, the outer tendon divided. D, E, the interior tendon. F, G, two orders of fibres, making two bellies of the muſcle.

XII. A *gland*, is a fleſhy part of the body, hard, round, or oblong, covered by its proper membrane; compoſed of arteries, veins, and lymphatic veſſels deſigned for the determined ſecretion, or mutation of ſome particular humors.

XII. A Gland. A. blood-veſſels. B. a nerve. C. excretory duct. The reſt repreſent the glandular body.

Ductus excretorius is a canal receiving in certain glands and viſcera the ſecreted liquors, and conveying them off to the proper deſtined places.

XIII. *Oſſa*, bones, are the hardeſt parts of the body, compoſed of ſtrong *lamellæ*, of the cellular texture, blood-veſſels, and nerves, and are deſtined to be a ſupport to all the other parts.

XIII. *Os*, the bone. *a*, *corpus*, the body of the bone; *b*, *caput*, the head; *c*, the *apophyſis*.

XIV. *Cartilages* are parts moſt ſimilar to the bones, white, flexile, and ſmooth, generally adhering to the extremities of the bones. The anterior part of the ribs is cartilaginous, the ſame alſo is the wind-pipe.

XIV. *Ligamentum* is a membranaceous part deſtined to join and connect together other parts.

XIV. The *croſs ligaments* in the poples or ham ſeen from the anterior ſide. (*a*) *Condylus externus femoris.* (*b*) *The internal condylus.* (*c*) The *tibia*. (*d*) *Fibula*. (*e*) *Ligamenta cruciata*. *a*, *b*, Smooth, white parts; the ends of the bones covered with a ſmooth cartilage.

Viſcera, bowels, are organic parts, *v.g.* the liver, &c.

Organon, or *pars organica* is any enlivened part of the body deſtined for ſome particular uſe.

PLATE III.

Of the Bones and their Connections.

That part of anatomy which treats of the bones is called OSTEOLOGIA. The bones are conſidered in the ſtate when all the ſoft parts are entirely taken away; or when ſome of them are left upon the bones. Thus, oſteology is divided into *dry*, *recent*, or *moiſt*.

Os, the *bone*, is the hardeſt, moſt compact, inflexible, and moſt inſenſible part of the body, compoſed of many ſmall *lamellæ*, originating themſelves from hard, rigid fibres, moſt cloſely attached and united one to the other, in their proper ſituation.

When the elements of the body longitudinally and in a ſeries meet one another, then ariſe the oſſeous *bony fibres*; when theſe fibres laterally join together, then are produced the *bony lamellæ*, or tables, between them is the effuſed and gradually coagulating *gluten* left, this is the origin of the bones. That point, where the oſſification has firſt appeared, is called the *punctum oſſificationis*, *r*.

1. A *bone* is flat, cylindrical, or irregular.

2. In *ſubſtance compact*, *(d) ſpongious*, *cellular*, *reticular*, from the cloſer adheſion or ſeparation of the oſſeous fibres, or cohering particles.

3. The *chemical analyſis* ſhews phlegm, ſalt, oil, volatile ſpirit, and earth.

4. The *texture* conſiſts in laminated longitudinal ſcaly fibres, with tranſverſal fibres which may be called *clavicular*. *(d)* Repreſents the inferior part of the thigh bone, with its lamellæ in their true ſituation.

The parts of the bones are:

I. *Diaphyſis*. A is the body of the bone, which firſt grows hard, and is the foundation of the reſt.

II. *(a) Apophyſes*, or *proceſſus*, are the various prominent warts of the diaphyſis: the round apophyſes are called *condyls*, *capita* or *heads*; others from their ſhapes are named *cervix*, neck; *ſpina*, ſpine; *mucro*, *corona*, *ſtylus*, &c. and they cannot be ſeparated by boiling.

(b) Epiphyſes are the oſſeous protuberances, which by the intervention of a cartilage adhere to the bone; and they ſeparate from the bone by boiling, they are cartilaginous in children, harden with age, but remain always ſpongy.

III. *Cavities*, there are many large or ſmall.

(c) Foramina, or *perforated holes*. The veſſels and nerves paſs through them.

(d) Meatus, are the interior cavities in which the marrow is contained.

(e) Sinus are the impervious cavities on the ſurface of the bones, and ſerve:

1.) To form articulations: when they are deep they are called *cotyle*, or *acetabulum*; when ſhallow, *glene*, *ſinus glenoideus*.

2.) To receive other parts, and are named *foveæ*, *foſſæ*, as orbits of the eye; when they have a long extent they are called *ſulci*, furrows.

Of the articulations of the bones.

IV. The articulations of the bones are made for the ſake of motion.

The articulation with a manifeſt motion is threefold, and called *diathroſis*, but is ſubdivided into

(f) Enarthroſis, or profound articulation; when a great head of a bone is received in the fovea or deep acetabulum of another bone, *e. g.* the head of the thigh bone in its acetabulum.

(g) Arthrodia, or a ſuperficial articulation; as the os humeri is connected with the ſcapula, or ſhoulder-bone, where its round head is received in the leſs deep fovea.

(h) Ginglymus, a mutual, reciprocal articulation, when a bone receives, and is received by another.

Synarthroſis, or articulation with an obſcure motion: like the bones of the carpus and tarſus with the bones, of the metacarpus and metatarſus.

Amphyarthroſis, or articulation with an imperceptible motion, as in the bones of the carpus and of the tarſus.

V. *Symphyſis*, a concretion, when the united bones are immoveable.

The *immediate* are:

(i) Raphe, or *ſuture*, when two bones are mutually indented into one another, like the teeth of a ſaw.

The true ſutures are: 1. the *coronal*; 2. *ſagittal*; 3. *lambdoid*, or *ypſiloid*: or they are *ſpurious*, like thoſe on the temple bone.†

(k) Harmonia, when the mark of union is like a line, as in the bones of the noſe.

(l) Gomphoſis, when the bones run one into another like a nail in a wainſcot, as the teeth in the maxillæ, or jaw-bones.

The *mediate* are, when other parts concur together: as

(m) Synchondroſis, when the bones are joined by cartilages, like the ribs with the ſternum.

(n) Syneuroſis, or rather *ſyndeſmoſis*, by means of ligaments.

(o) Syntenoſis, when the bones are joined by means of tendons.

(p) Synymenſis, when the bones are connected by membranes.

(q) Syſſarcoſis, when they are connected together by muſcles.

(r) Shews the radiating *fibres* of a bone. A is the central part of the os frontis, more perfect than the others, and where oſſification firſt commences.

PLATE IV.

When all the bones of the human body are joined together it is called a *Skeleton.**

The *Skeleton* is called *artificial,* when the bones are connected by braſs wires; or it is *natural,* when the bones are prepared and united together by their natural ligaments.

The bones of the body are divided into bones of the *head, trunk,* and *extremities.*

The bones of the head and neck.

The bones of the head are the ſkull *(cranium)* and jaw-bones *(maxillæ).*

The *cranium,* or *calvaria,* is made of two tables, or lamellæ, between which is the *diploë.*

a. Os frontis, coronale, is on the fore part, called forehead.

The os frontis and all the other bones of the cranium conſiſt of two tables, and contain a ſpongy ſubſtance between. Surgeons, in the operation of the trepan, ſhould well attend to the ſtructure of thoſe bones.

b. Oſſa *ſyncipitis,* or *verticis,* the *bregma.* Between *a* and *b* is a part of the coronal ſuture, the oſſa bregmatis, or *parietal* bones, form or conſtitute the uppermoſt and lateral parts of the cranium.

c. Part of the os ſquamoſum, or ſquamous part of the temporal bone.

2. The mamillary proceſs.

d. Os jugale, or *malæ, zygoma,* or cheek-bone.

e. A part of the ſuperior maxillary bone with eight teeth. The ſuperior maxilla has thirteen bones and ſixteen teeth.

f. Maxilla inferior, or the lower jaw-bone.

g. Seven vertebræ of the neck with the cartilages.

3. *The tranſverſal proceſſes.*

Of the trunk.

The trunk conſiſts of the dorſal ſpine, bones of the breaſt, and the oſſa innominata.

b. Sternum, or *breaſt-bone,* has, in adults, one, two, or three parts; on the upper part it has a ſinus, or furrow, for the wind-pipe; and on the ſides *i.* The heads of the *clavicules* are articulated. On both ſides are the ſuperior ſeven ribs: the ſternum has the ſhape of a dagger, on its point is the *cartilago xiphoides, enſiformis. k.*

l. Coſtæ, the ribs, are twenty-four in number, twelve on each ſide.

m. Five vertebræ of the loins with the cartilages between.

4. Proceſſus tranſverſales.

n. Os ſacrum, is compoſed of five vertebræ.

o. Oſſa innominata, called by Galen ἀνώνυμα, are divided into ilia, oſſa iſchia, and pubis. The firſt, 5. *Os ilium,* is called by ſome λαγώνον, ἢ κενεώνων: the ſecond, 6. the anterior, *pubis,* της ἥβης ὀςῶν. The third, 7. *os coccygis;* ἰσχίον and ἀνώνυμον. 8. *Os iſchium,*† the circular appendix on the ſuperior part is by ſome called *ſpina ilii,* or ſpine of the ileum.

9. The inner cavity of the os innominatum and the os ſacrum is called *pelvis.*

Superior extremities.

The ſuperior extremities are divided, I. in the *humerus,* or ſhoulder-bone, compoſed of the ſhoulder and clavicle: II. the *cubitus,* the fore-arm, and is compoſed of the ulna and radius: III. the *manus,* hand; which is again divided into the *carpus, metacarpus,* and the five fingers, *digiti.*

i. The *clavicles* are crooked like an Italian *ſ.* the round end articulates with the ſternum, and the flat with the acromion of the ſcapula.

10. *Scapulæ,* the ſhoulder-blades.

11. *Cervix ſcapulæ,* or the neck of the ſhoulder-blade.

q. Os humeri, the ſhoulder-bone, or upper bone of the arm.

11. Condylus internus. 12. Condylus externus.

r. Radius lies by the ſide of the ulna, but is a little ſhorter.

s. Ulna, is alſo called *cubitus.* The *cubitus* is directed to the little finger; the *radius* to the thumb.

t. Carpus, the wriſt, conſiſts of eight different ſhaped little bones.

u. Metacarpus, four bones belong to it. The bones between the fingers and the carpus, or wriſt, are named *metacarpus.*

15. Is the metacarpal bone of the thumb.

w. The bones of the five fingers. The five fingers have three phalanges, or thirteen bones, beſides the ſeſamoide little bones, under the articulations, or *joints.*

The inferior extremities.

The inferior extremities conſiſt: I. Of the *oſſa femoris,* thigh-bone: II. *crura,* the legs, divided into *tibia,* the large or ſhin-bone, *fibula,* the leſs bone, and *patella,* kneepan: III. the foot, is divided into *tarſum, metatarſum,* and five *toes.*

x. The *femur,* the parts of which are:

14. *Caput,* or the ſuperior head, is uppermoſt in the furrow of which is the round ligament inſerted.

15. *Collum,* or *cervix,* the neck is under the head.

16. *Trochanter major,* } are below the collum, or
17. *Trochanter minor,* } neck.

18. *Condylus internus.* 19. *Condylus externus.*

20. *Patella,* mola, lays on the femur and tibia. *y.*

z. Fibula, in Greek περόνη.

21. *Malleolus internus.* 22. *Malleolus externus.*

23. *Os calcis,* calx, the bone of the heel. Between 23 and 24 are ſix other bones of the tarſus.

25. *Metatarſus,* has five bones.

26. The bones of the toes or the *phalanges.*

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* The antients have very well known the bones of the human body, their figures and connections., as may be ſeen by the Greek deſcriptions in the *Schola Medicinæ,* extracted from *Hippocrates, Rufus Epheſius, Galenus,* and *Oribaſius,* &c.

PLATE V.

The back view of the ſkeleton

Of the head and neck.

a. *Oſſa parietalia*, or parietal bones, are on the ſides.
b. Os occipitis is poſterior.
1. The *ſagittal* ſuture divides the upper part of the cranium into two equal parts.
2. The *lambdoidal* ſuture joins the os occipitis with the bones of the ſynciput.
c. *Os malæ*, or cheek-bone.
d. The lower maxillary bone.
e. The ſeven vertebræ of the neck.

Of the bones in the trunk.

The bones of the whole trunk are divided into the ſpine, thorax, and pelvis.

The *dorſal* ſpine is that column of bones reaching from the condyle of the occipital bone to the os ſacrum, containing the ſpinal marrow. The whole ſpine conſiſts of twenty-four vertebræ, which are divided into three parts; *e.* the ſeven uppermoſt are the *vertebræ* of the neck; 3. the twelve in the middle are dorſal vertebræ; 4. the five inferior are the *vertebræ* of the loins. Every one has a body, two epiphyſes and ſeven proceſſes. 5. Os ſacrum. 6. Os coccygis.

A. The firſt vertebra of the neck is nominated *atlas*, the *atlas* has no body nor ſpine.

B. The ſecond vertebra, *epiſtropheus*, beſides the proceſſes it has a dental proceſs, like a tooth.

The *uſe* of the ſpine is to keep the body erect, to leave more room for motion, to ſuſtain the head over the trunk, to receive and preſerve the ſpinal marrow, and to admit the nerves to paſs through the lateral openings.

f. The *clavicle*, it is the firſt bone formed in the fœtus, and is of a ſpongy fragile ſubſtance.

Its *uſe* is, I. to ſtrengthen the ſuperior extremities, and to hinder the falling too much forward on the breaſt: II. to give an origin to ſeveral muſcles: III. to preſerve and defend from injury the great ſubclavian veſſels, which lay underneath.

g. *Scapulæ, homoplatæ*; the *ſhoulder* blade-bones.
7. *Acromion.* The clavicles are fixed to it.
8. *Proceſſus coracoideus*, or coracoid proceſs.
9. The ſhort proceſs, or *cervix*, where a ſinus is formed for the os humeri.
10. The *ſpine* of the ſcapula, dividing the poſterior part into two.

The uſe of the ſcapula. I. To ſuſtain and connect the arm with the trunk. II. To give riſe or inſertion to many muſcles. III. To defend the contents of the thorax.

The ribs or coſtæ.

h. The ribs form the lateral parts of the thorax.

Commonly there are twenty-four, twelve on each ſide.

The true ribs, or *coſtæ veræ*, are the ſeven uppermoſt ribs, connected on each ſide by means of their cartilages with the ſternum, and with the ribs of the oppoſite ſide, make ſo many full circles. See alſo Tab. IV.

Falſe ribs, *nothæ*, or ſhort ribs, are thoſe which follow the former, and are five, not touching the ſternum, but are connected with it by their cartilages.

The *ſubſtance* of the ribs is on the outſide *compact*, but internally *ſpongy*.

The uſe of the ribs. They form the ſides of the thorax; during reſpiration they increaſe or diminiſh the cavity of the thorax; they defend the lungs and the heart; many muſcles adhere to them; and externally and anteriorly are placed the *mammæ*, breaſts.

Pelvis.

The *pelvis* is in the inferior part of the trunk, and acquires that name from its ſhape.

The pelvis is compoſed of the following eight bones:

On the poſterior part of the pelvis is the os ſacrum, 5. and os coccygis 6.*

Laterally the ilium, *i.* with the ſuperior margin called *criſta*.

On the foreſide of the pelvis the oſſa pubis, (ſee Tab. IV.)

On the inferior part of the pelvis oſſa iſchii. *k.*

In women thoſe bones are ſmaller and more aſunder than in men, particularly the oſſa pubis; thus they make the cavity of the pelvis, and the angle between the os pubis and iſchii, larger, for the better accommodation of the fœtus, and for its eaſier excluſion in the birth.

The connection of thoſe bones is by means of cartilages and ligaments.

The *uſe* of them all is to form the pelvis and to make an acetabulum, to receive the head of the thigh-bone.

The *uſe* of the *pelvis* is the following: to defend part of the inteſtinum ileum, the rectum, and the urinary bladder; in men, the veſiculas ſeminales, and ſpermatic ducts; in women, the uterus, vagina, with the adherent parts.

The ſuperior extremities.

f. Claviculæ, *g.* ſhoulder-blade, *l.* ſhoulder-bone. 11. External condyle. 12. Internal condyle. *m.* Radius. *n.* Ulna, the ſuperior part of which is the *olecranon*; the inferior *proceſſus ſtyloideus*. *o.* Carpus. *p.* Metacarpus. *q.* Phalanges of the fingers.

The lower extremities.

r. Os femoris. 13. Trochanter major. 14. Trochanter minor. 15. Condylus internus. 16. Condylus externus. *s.* Tibia. *t.* Fibula. 17. Malleolus externus. 18. Malleolus internus. *u.* Tarſus. *v.* Metatarſus. *w.* Phalanges.

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* Some anatomiſts will add the os ſacrum and os coccygis under the name of *vertebræ ſpuriæ*.

PLATE VI.

Of various bones.

Figure I. *Cranium*, &c.

1. Os frontis. 2. The upper foramen orbitale, where paſſes through the firſt branch of the fifth pair of nerves, with a ſmall artery; therefore the ſurgeons ſhould take care, particularly in infants, not to make inciſions in thoſe places.

3. Underneath is the frontal ſinus, where the trepan cannot be performed without danger.

4. Os bregmatis, or parietal bone. 5. Os temporis, or temporal bone. 6. The ſquammous part. 7. The petrous part, whence. 8. The meatus auditorius. 9. The maſtoid, or mammillary proceſs. 10. The ſtyloid proceſs.

11. Os occipitis. 12. Os malæ. 13. Os ſphænoidale, baſilare, multiforme, &c.

14. Os maxillæ ſuperioris, or ſuperior maxillary bone; it conſiſts of thirteen bones and ſixteen teeth, if the number be complete. Of theſe thirteen bones, ſix are pairs: whereof, the lacrymal, ii. the naſal, iii. the jugal, iv. the maxillary, v. the lower ſpongeous, vi. the palatinum, and the laſt odd one is called *vomer*.

They are joined together by a plain juncture, called harmonia.

15. Os lacrymale, or unguis; there is to be obſerved in it a furrow, for the conformation of the naſal duct; which is of uſe to conſider in the chirurgical operation for the fiſtula lacrymalis.

16. The pterigoid proceſſes.

17. The coronal ſuture. 18. The ſquammous ſuture. 19. The lambdoidal ſuture.

The *uſe* of thoſe ſutures are:

i. The better to affix the dura mater, and to ſuſtain it firmly within the cranium. ii. That ſome nervous fibrillæ and veſſels may paſs through them. iii. To let out the vapours through the ſkull. iv. As ſome aſſert, and that the virtues of fomentations, poultices, and other remedies may penetrate. v. That in accidents, the fiſſures may not extend too far, but may ſtop in the ſutures. vi. In childbirth it is of very great advantage, that the cranium be not made of one ſingle bone, but that there are many in the tender-boned fœtus, to ſlide one over the other, and bear the compreſſion; it would otherwiſe cauſe more difficult labours.

Figure II. *The inferior maxilla.*

1. The coronal proceſſus, to which the adducent muſcles are affixed.

2. The condyloid proceſſes, by which the maxilla is articulated with the cranium, or head.

a. The Teeth. Dentes.

In both maxillæ are cavities in which thirty-two teeth are fixed.

The teeth are divided in three claſſes.

b. Inciſores are the four anterior ones.

c. Two *canini* are nearly conical; the two upper canini have the name of eye-teeth.

d. The grinders, or *dentes molares*, they are blunt, large, and uneven.

e. Dentes ſapientiæ are the hindermoſt, and of the ſame ſhape as the molares.

Figure III. *A longitudinal ſection of the cranium.*

1. The frontal bone. 2. The os bregmatis with the impreſſions of the veſſels belonging to the dura mater. 3. The os occipitis. 4. The ſella turcica, or equina, is a cavity in the ſphenoid bone, and in the inſide of the cranium 5. The proceſs of the ſphenoidal bone, making a part of the ſeptum narium. 6. The proceſs of the ethmoidal bone. 7. The os vomer. 8. Criſta galli, is a third part of the os ethmoides, very like a coxcomb. 9. The ſinus of the os frontis. 10. Various openings for the nerves.

Figure IV.

The cranium with the ſuperior maxilla laying on the vertex.

A. The os occipitis. B. The hole through which the medulla oblongata changes into the medullary ſpine. C. The inferior part of the os temporis. D. The os baſilare. E. The os palati. F. Os jugale, *a*, *a*. The proceſſes of the os occipitis which articulate with the vertebra. *b*. Sinus. *c* The mammillary proceſſes. *d*. The foramen for the lateral ſinus of the dura mater. *e*. The beginning of the meatus auditorius. *f*. The ſinus of the os temporis for the articulation of the inferior maxilla. *g*. The ſtyloid proceſs. *h*. Proceſſus jugalis of the os temporum. *i*. The foramen through which the nerve of the tenth pair comes out. *k*, *k*. Proceſſus aliformes of the os baſilare. *l*. The vomer proceeds up to the ſeptum narium, or the eleventh bone of the ſuperior maxilla. *m*. A foramen for the egreſs of veſſels. *n*. The teeth. *o*. A foramen for the paſſage of another branch of the fifth pair of nerves toward the inferior parts. *p*. The foramen through which the carotid artery enters the brain.

Figure V. *The bones of the carpus and metacarpus.*

The carpus conſiſts of eight ſmall little bones of various ſhapes.

a. Os multangulum majus. *b*. Multangulum minus. *c*. Capitatum. Cuneiforme. *d*. Naviculare. *e*. Lunatum. *f*. Triquetrum. *g*. Subrotundum. *h*. Metacarpus. *i*. Phalanges of the fingers.

Figure VI. *The bones of the tarſus and metatarſus.*

A. The *tarſus* conſiſts of ſeven bones. *a*. Talus, aſtragalus. *b*. Calx, calcaneus, into which the tendo Achillis is inſerted. *c*. Os ſcaphoides, naviculare, cymbiforme. *d*. Os cuboides. *e*. Os cuneiforme majus. *f*. Medium. *g*. Minus. *h*. *Metatarſus*, pecten, has five bones belonging to it. *i*. The toes have fourteen bones, they have alſo ſeſamoid bones, as in the fingers.

The nails are fixed on the extremities of the fingers and toes, in which is the lunula, this is the whiter part adjoining the cutis.

PLATE VII.

The ſide view of a ſkeleton.

The head and neck.

Os parietale, in the ſuperior part of the cranium.

Sutura ſagittalis, joins together the parietal bones.

Sutura lamdoidalis, which connects the os occipitis with the parietal and temporal bones.

Os occipitis, in the poſterior inferior part of the cranium.

Os temporis is in the inferior and lateral part.

Os frontis is on the anterior part.

Proceſſus mammillaris or maſtoideus, to which the muſculus ſternomaſtoideus is inſerted.

Os maxillare ſuperius, is on the anterior and middle part of the face; makes a part of the face, palate, noſe, and orbit of the eyes.

Os maxillare inferius, is in the lower and anterior part of the face; is the organ for maſtication.

Seven *vertebræ of the neck*.

All the *tranſverſe apophyſes* of the vertebræ of the neck have a peculiar foramen for the aſcending vertebral arteries.

The trunk.

Scapula, the ſhoulder-blade, is on the uppermoſt and lateral part of the back.

The vertebræ of the back are twelve,

And have theſe particulars:

1. On their ſides of their bodies is formed a fovea by the junction of two vertebral bodies, to make a head for the ribs.

2. A ſuperficial groove on the top of the tranſverſe apophyſes for the leſs head of the ribs.

Coſtæ, the ſeven ſuperior ribs are called *veræ*, or true.

—— the five inferior ribs are named *nothæ*, falſe ribs.

The two laſt, or ſpurious, are entirely looſe.

The external ſuperficies of the *coſtæ* ribs is convex, the internal is concave; here, on the inferior margin, is a furrow, which runs from the angle of each rib forward, and receives the greateſt part of the blood-veſſels and nerves; this is very neceſſary to be known in the operation of the empyema.

Vertebræ lumborum. The greateſt *mobility* of the ſpine is between the laſt vertebra of the back, and the firſt of the loins.

Pelvis.

Os ſacrum is in the poſterior part between the laſt vertebra of the loins and the os coccygis.

The *os coccygis* has four ſmall bones at the end of the os ſacrum.

Their uſe is to form the pelvis, to ſuſtain the inteſtinum rectum, and to prevent in labour pains the rupture of the perinæum.

Oſſa innominata.

Os ilii forms the ſuperior part of the pelvis.

Os iſchii is inferior, *os pubis* anterior.

The *tuberoſity* of the iſchium is the inferior margin on which we ſit.

The ſuperior extremities.

Os humeri is between the ſhoulder and the fore-arm.

Cubitus is on the inſide of the fore-arm, towards the little finger.

Radius is on the outſide of the arm, towards the thumb.

Carpus conſiſts of eight ſmall bones, ſituated between the fore-arm and metacarpus.

Metacarpus is between the carpus and the fingers.

They conſtitute the middle part of the hand.

Digiti. The fingers are on the inferior extremities of the metacarpus, formed of three ſmall bones, which are called *phalanges*.

The inferior extremities.

Femur, the thigh-bone is between the pelvis and ſhin-bone, or tibia.

Tibia is between the femur and tarſus, in the interior part of the leg.

Fibula is externally lying along the tibia.

Patella, knee-pan, is between the condyles of the femur and above the tibia in a ſinus.

Its *uſe* is to ſtrengthen the articulation of the knee, and to ſerve as a pulley to the tendon of the extenſor muſcles of the tibia.

Tarſus is between the leg and metatarſus.

Its *uſe* is to make the baſis of the foot, and to ſerve towards the motion of the extreme foot.

Metatarſus is between the tarſus and the toes.

The *uſe* is to make the upper part and ſole of the foot.

Digiti, the toes.

Seſamoid bones

Are ſmall peas-like bones.

Situation in the junction under the phalanges of the thumb, in the hands and feet.

Figure II. *On the ſkeleton of an infant.*

All their *bones* generally are ſofter than in adults or grown perſons, and ſome are yet cartilagineous.

In the bones of the *cranium* the middle part is moſt ſolid.

The *os frontis* is divided through the middle to the noſe.

All the *ſutures* are imperfect.

Os occipitis conſiſts of two or four diſtinct bones.

Oſſa temporalia are cartilagineous in their circumference.

The *meatus auditorius externus* is then wanting.

The *proceſſus maſtoideus* is not then perceptible.

Maxilla inferior, on the fore part, is divided into two parts.

Dentes, the *teeth*, are hid in their ſockets, covered by thin membranes.

The *ſternum* is cartilagineous.

Os ſacrum has ſeparate vertebræ.

Os coccygis is cartilagineous.

Patella, the *carpus* alſo and *tarſus* are cartilagineous.

All *epiphyſes* in infants, in the beginning, are cartilagineous.

The *nails* in the third month already can be diſtinguiſhed, in utero.

Figure III. *Dentes.*

a. *Dens inciſoris*, or cutter. *b*. *Dens caninus*, or dog-teeth. *c*, *d*, *e*. Different *dentes molares*, or grinders, ſome with two, others with three roots, or phangs.

PLATE VIII.

Figure I. Repreſents a piece of the glutæus magnus muſcle, or great muſcle of the poſteriors, of an adult, not boiled but freſh, in which are ſhewn the different thickneſs and figure of the lacerti, muſcular ſubdiviſions, or *faſciculi*, ſo as they appear to the naked eye.

a. a. Is the exterior part of the muſcle and the *vagina* which covers it.

b. b. b. b. Are ſeparations cauſed by that vagina, and penetrate into the ſubſtance of the muſcle, by which the muſcle is divided into large *muſcular* diviſions, or *lacerti*.

c. c. c. c. Are the ſections of thoſe lacerti, appearing of different magnitude and figure.

cd. cd. cd. Shew the parallel courſe of thoſe lacerti.

Figure II. Is a ſmall piece of boiled human fleſh, or muſcle, taken from the glutæus magnus muſcle, marked 1. 2. 3. 4. 5 6. 7. 8. The boundaries and diviſions which diſtinguiſh theſe lacerti are expreſſed by a ſingle thick line.

It appears, that the greater lacerti are compoſed of ſmaller, which can be ſeen plainly in 1. 2. 3. 4. 5. 6. 7. And thoſe ſmaller lacerti conſiſt again of thoſe of the the ſmalleſt ſize; but I have delineated this only in No. 8.

Figure III. Shews a *lamella* of the lacertus i. in the fig. II. cut off tranſverſely.

This lamella is delineated ſo, as it has appeared by a glaſs augmenting the objects five times in diameter.

a. a. a. a. The *vagina* ſurrounding the greater lacertus.

b. b. b. b. Its *proceſſes*, going to the other lacerti, which are only in ſome part ſhewn.

c. c. c. c. *Separations* which are produced by the vagina of the *lacertus major*, and divide it into eight ſmaller.

1. 2. 3. 4. 5. 6. 7. 8. The *ſmaller lacerti* divided out of the *major*.

7. In this lacertus is particularly ſhewn, how each *minor* lacertus by membraneous ſeparations, is divided into ſmalleſt.

8. Here is ſhewn how each *ſmalleſt lacertus* is compoſed of muſcular fibres.

Figure IV. In this figure is ſhewn, a ſmall piece of boiled human muſcular fibre in its length, ſeen by a glaſs, magnifying the objects four hundred times. In the boiled muſcles, examined with ſuch microſcopes, the tranſverſe white wrinkles are nothing elſe than ſuperficial impreſſions of the veſſels and cellular threads, and perhaps of ſmall little nerves in the vagina of the fibre. When muſcles are boiled they ſhrink the fibres in many places, and impreſs more or leſs thoſe tranſverſe wrinkles, called *rugæ*.

Figure V. Is another boiled *fibre* of human fleſh, or muſcle, ſeen through the ſame microſcope as in the preceding figure. But in this, partly by maceration, partly by gentle compreſſion, the outer vagina is nearly deſtroyed, and therefore the *fila carnea rugoſa*, which compoſe the muſcular fibres, appear plainer.

Figure VI. Are three fila carnea, or fleſhy threads, whoſe wrinkles, or greater windings *a. a. a.* are in place of thoſe which are ſeen in the fig. V.

Figure VII. a ſingle fleſhy thread, or *filum carneum*, ſeen through the ſame microſcope, whoſe ſerpentine windings are clearly ſeen.

Figure VIII. Another filum carneum; has tranſverſe wrinkles, which cut the filum as it were into ſome little globules, or joints.

Figure IX. The tranſverſe ſections of three muſcular fibres of the human fleſh; are in their ſheaths included. They are delineated by the ſame microſcope as fig. VII. VIII. In each of thoſe tranſverſe ſections of the three fibres, very ſmall and a great many *areolæ* appear.

Figure X. Is a tranſverſe ſection of two muſcular fibres, ex Gado mutatio Linnæi, whereof one is bigger, the other ſmaller, alſo ſeen with the glaſs, magnifying the diameter four hundred times, that it may be ſeen how the *fila carnea*, or fleſhy ſmall threads, in thickneſs do not differ from the human.

Figure XI. The ſmalleſt faſciculus of muſcular fibres, ſeen through a glaſs, magnifying thirty times the diameter.

a. a. a. a. Muſcular fibres in the ſmalleſt faſciculus.

b. b. b. b. Wrinkles and alternate windings of the faſciculus itſelf.

Figure XII. Beſides thoſe wrinkles, which we have ſeen in the preceding figure, and which compoſe the ſmaller wrinkles of the muſcular faſciculus, are often ſmaller yet in the fibre itſelf, which I have found in boiled beef, ſmalleſt faſciculus of which I have delineated by the ſame microſcope.

Figure XIII. Here is given a *lamella* of the injected ſupinator longus muſcle, of a child of ſix months old. This lamella is drawn from a glaſs magnifying the diameter one hundred times.

a. Extremities torn off from the muſcular fibres, which are much thinner than in an adult perſon.

b. b. Two principal arterial branches.

c. c. c. c. The ſmaller branches cut off.

d. d. d. d. The ſmalleſt branches.

Beyond thoſe ſmalleſt veſſels, the coloured injection will not penetrate; for the ſmaller veſſels are not permeable to the matter of injection, and in particular to the cinnabar, which gives the colour to the injection; but there are minute coloured injections, which paſs much farther than cinnabar, and tinge almoſt all the parts of muſcles, ſo that they appear nearly vaſcular in every part of their ſubſtance.

PLATE IX.

Muſcles of the head and neck.

Name and origin.	*Inſertion.*	*Action.*
a. *Occipito-frontalis.*	Near the lambdoid ſuture.	Moves the ſkin.
b. *Attollens aurem*, from the upper part of the pericranium.	Above the ear.	Its action is ſcarcely obſervable.
c. *Orbicularis palpebrarum*, from the orbital proceſs of the upper maxilla.	Into the naſal proceſs of the ſuperior maxilla.	To ſhut the eye-lid.
d. *Depreſſor anguli oris*, from the edge of the maxilla inferior.	Into the angle of the mouth, and courſe of the lips,	To depreſs the lips.
e. *Orbicularis oris*, is formed by the muſcles that move the lips.	Surrounds the mouth like a ring.	Shuts or corrugates the mouth.
f. *Platyſma myoides*, from the deltoid and pectoral muſcles.	Into the chin, lips, and the noſe.	It depreſſes the chin and lips.

The muſcles of the trunk.

a. *Pectoralis major*, from the clavicle, ſternum, and the ribs.	Nearly in the middle of the os humeri.	Moves the arm towards the breaſt.
b. *Serratus magnus*, from the true and two falſe ribs.	On the baſis of the ſcapula.	To move the ſcapula forward and downwards.
c. *Latiſſimus dorſi*, from the os ſacrum and ilium.	In all the vertebræ of the back and loins.	To bend the back with other muſcles.
d. *Obliquus externus deſcendens*, from the ribs near the ſerratus muſcle.	In the linea alba and os pubis.	With other muſcles it ſupports and compreſſes the abdomen.

e. *Linea ſemilunaris.* f. *Linea alba*, under *f. umbilicus.* g. *Annulus*, or abdominal ring.

The upper extremity.

a. *Deltoides*, from the clavicle and ſcapula.	Nearly in the middle of the os humeri.	To elevate the arm.
b. *Biceps flexor cubiti*, from the ſcapula by two heads.	In the uppermoſt end of the radius.	To bend the fore arm conjointly with the brachiæus internus.
c. *Supinator radii longus*, from the external ridge of the os humeri.	Into the inferior condyle, or extremity of the radius.	To roll the radius outwardly with the ſupinator brevis.
d. *Pronator teres*, from the internal condyle of the os humeri.	Into the middle of the outward, or poſterior part of the radius.	To roll the cubitus and hand inwards, with the aſſiſtance of the pronator quadratus.
e. *Palmaris longus*, from the internal condylus of the os humeri.	In the palm of the hand, near the articulations of the fingers with the metacarpus.	To contract or corrugate the palm of the hand.
f. *Palmaris brevis*, from the metacarpal bone of the little finger.	In the annular ligament of the carpus and articulation of the thumb.	To draw the thumb towards the little finger.
g. *Flexor carpi radialis*, from the internal condyle of the os humeri.	In the carpus near the thumb,	To bend the hand.

h. Part of the *flexor ſublimis perforatus.* i. Inſertio *flexoris carpi ulnaris.*

k. *Abductor pollicis*, from the tranſverſe ligament of the carpus, and from one of the carpal bones.	In the two firſt bones of the thumb.	To draw the thumb from the fingers.

The lower extremities.

The *faſcia lata* is a ſtrong tendinous membrane, beginning from the upper edge of the os ilium, Poupuart's ligament, and obliquus externus muſcle, from the os ſacrum and greater trochanter, deſcends down the femur, includes nearly all the muſcles of the thigh and leg, at laſt it diſappears on its extremity; the faſcia keeps tight the muſcles over which it is ſpread, and ſtrengthens their action conſiderably.

b. Part of the *glutæus maximus.* c. *Pectinalis.*

d. *Triceps longus*, from the os pubis and ilium, has three heads.	In the linea aſpera of the os femoris.	To adduce the thigh-bone inwardly.
e. *Gracilis*, from the os pubis.	Into the tibia under the ham.	To bend the leg.
f. *Sartorius*, from the ſuperior ſpine of the os ilium.	In the inner ſide of the tibia.	To bend the leg obliquely inward, to croſs the leg.
g. *Rectus cruris*, from the anterior ſpine of the ilium.	In the upper part of the patella.	To extend the leg.
h. *Vaſtus externus*, from the outſide of the thigh.		
i. *Vaſtus internus*, from the inſide of the thigh.		

k. *Tibialis anticus.* l. *Peronæus longus.* m. *Extenſor longus digitorum pedis.* n. *Gaſtrocnemius externus.*
o. *Solæus.* q. *Abductor pollicis.*

PLATE X.

The head and neck.

Name and origin.	*Inſertion.*	*Action.*
a. Part of the *occipito frontalis*, with the aponeuroſis; from the inferior part of the os occipitis.	Under the lambdoid ſuture.	Pulls the ſkin of the head backwards.
b. *Attollens aurem*; from the aponeurotic expanſion of the frontal muſcles.	Into the upper part of the ear, on the helix by means of a tendon.	To draw the ear upwards.
c. *Anterior auris*; from the baſis of the zygoma from a tendineous membrane of the temporal muſcle.	In the beginning of the helix, to the outer part of the concha.	To make this eminence more tenſe.
d. *Retrahentes auris*; ariſe from the aponeurotic expanſion of the cervical muſcles.	Are affixed to the convex part of the concha.	To draw the ear back.
	Trunk.	
a. *Trapezius*, or *cucullaris*; begins from the occiput, proceſſes of the neck, and ſpinous proceſſes of the neck.	In the ſcapula and clavicla.	Moves the ſcapula in different directions according to the lines of its different fibres.
b. Its *tendinous junction.*		
c. *Venter carnoſus latiſſimi.* *d.* The tendon of this muſcle, beginning with the ſerratus poſticus inferior. *e.* Part of the obliquus externus abdominis.		
	Superior extremity.	
a. *Deltoides*; from the clavicle and ſcapula.	Near the middle of the os humeri.	To riſe the arm, with others.
b. *Infra ſpinatus*; from the parts below the ſpine of the ſcapula. Lower down is the portion of the *teres minor* and *major.*	In the neck of the os humeri.	To draw the humerus backwards.
c. *Triceps extenſor cubiti*; from the neck of the ſcapula and outward part of the humerus.	Is fixed to the olecranon.	To extend the fore arm and to draw it a little back.
d. *Extenſor carpi radialis longior*; from the external condyle of the humerus.	In the bones of the metacarpus.	To extend the wriſt, and bring the hand backward.
e. *Extenſor digitorum communis manus*; from the external condyle of the os humeri.	On the poſterior part of the four fingers.	To extend the four fingers.
f. *Extenſor oſſis metacarpi pollicis*; from the outſide of the ulna.	On the outſide of the thumb.	To extend the thumb.
g. *Extenſor primi internodii pollicis manus*; from the ulna and interoſſeus ligament.	In the upper part of the firſt bone of the thumb.	To extend the firſt bone of the thumb.
h. *Extenſor ſecundi internodii pollicis*; from the ulna and interoſſeus ligament.	In the laſt bone of the thumb.	To extend the laſt joint of the thumb.
i. *Extenſor carpi ulnaris*; from the external condyle of the os humeri.	In the bones of the metacarpus, and the baſis of the little finger.	To extend the hand backward.
k. Part of the *flexoris carpi ulnaris*; from the internal condyle of the os humeri.	By a tendon into the os piſiforme and unciforme.	To bend the hand and to contract it.
	Inferior extremity.	
a. *Glutæus maximus*; from the os ſacrum and ilium.	Below the greater trochanter.	To extend the thigh.
b. Part of the glutæus medius. *c.* Part of the tenſoris vaginæ femoris.		
d. *Vaſtus externus*; from the outer ſide of the os femoris.	On the upper part of the patella.	To extend the leg aſſiſted by others.
e. The long head of the biceps flexoris cruris.	*f.* Part of its ſhort head.	
g. *Semitendinoſus*; from the protuberance of the os iſchium. *h.* *Gracilis*; from the anterior part of the os pubis.	On the inner and back part of the tibia, or ham.	To aſſiſt with others in bending the leg.
i. Pars vaſti externi.		
k. *Gaſtrocnemius externus*; from two condyles of the os femoris. *l.* *Solæus*, or *gaſtrocnemius internus.*	On the heel they form the *tendo Achillis.*	To extend the foot.
m. *Tendo Achillis*, with the plantaris.		
n. *Peronæus longus*; from the uppermoſt part of the fibula.	In the ſecond phalanx.	To bend with others the four ſmall toes.
o. *Peronæus brevis*; from the external and fore part of the fibula.	In the external metatarſal bone.	To bend the foot outward.
p. *Tendines extenſoris longi digitorum pedis.* *q.* *Abductor minimi digiti pedis.*		

PLATE XI. *The ſecond layer of the muſcles on the anterior part of the body.*

Name and origin.	*Inſertion.*	*Action.*
	On the head and neck.	
a. *Corrugator ſupercilii*; from the angular proceſs of the os frontis.	Into the fleſhy part of the occipito frontalis muſcle.	Contracts the eye-brow.
b. *Temporalis*; from the ſemicircular ridge of the parietal bone.	In the coronoid proceſs of the lower jaw.	To pull the lower jaw upwards in maſtication, &c.
c. *Maſſeter*; from the proceſſus zygomaticus.	In the angle of the lower jaw.	
d. *Levator anguli oris*; from the jugal bone, near the noſe.	In the angle of the lips.	To draw the lips upwards.
e. *Buccinator*; from both jaw-bones.	Into the angle of the mouth and gums.	To aſſiſt in maſtication and laughing, and draw the mouth.
f. *Orbicularis oris.* g. *Depreſſor labii inferioris.*		
h. *Sterno-cleido maſtoideus*; from the ſternum and clavicle.	Into the maſtoid proceſs.	Bends the head forward.
i. *Sterno hyoideus*; from the firſt rib, ſternum, and clavicle.	Into the baſe of the os hyoides.	Pulls the os hyoides downwards.
k. *Levator ſcapulæ*; from the firſt four vertebræ of the neck.	Into the ſuperior angle of the ſcapula.	Elevates the ſcapula.
	Trunk.	
a. *Subclavius*; from the cartilage of the firſt rib.	Into the inferior part of the ſcapula.	To pull the clavicle forwards and downwards.
b. *Pectoralis minor*; from the third, fourth, and fifth true ribs.	In the coracoid proceſs of the ſcapula.	To bring the ſcapula forwards, or to raiſe the ribs.
c. *Serratus magnus*; from the nine ſuperior ribs.	Into the baſe of the ſcapula.	To move the ſcapula forward and downwards.
d. *Rectus abdominis*; from the os pubis.	Into the ſternum and the ribs.	They cover and compreſs the abdomen, help to extrude the fæces, &c. and aſſiſt in reſpiration, &c.
e. *Pyramidalis*; from the fore part of the os pubis.		
f. *Obliquus aſcendens internus*; from the ſpina of the os ilium.	Into the linea alba and lower ribs.	
	Superior extremity.	
a. *Biceps flexor cubiti.* b. Its ſhort head. c. Its long head. d. *Extenſor carpi radialis longior.*		
e. *Flexor ſublimis perforatus*; from the inner condyle of the os humeri.	Into the ſecond bone of each finger.	To bend the four fingers.
f. The inſertion of the extenſor carpi ulnaris.		
g. *Extenſores pollicis*; from the outer or back part of the ulna.	Into the laſt bone of the thumb.	To extend the thumb.
i. Tendo *flexoris longi pollicis manus.*		
k. *Abductor minimi digiti manus*; from the os piſiforme and annular ligament.	Into the firſt bone of the little finger.	Abduces the little finger.
	Inferior extremity.	
a. *Iliacus internus*; from the vertebræ of the loins and the ſpine of the os ilium.	Into the trochanter minor.	To bend the thigh with others.
b. *Pectinalis*; from the os pubis.	In the linea aſpera of the os femoris.	To bring the thigh upwards, and turn it outwards.
c. *Triceps longus*; from the os pubis and ilium.	In the linea aſpera of the os femoris.	To bring the thigh inwards and upwards.
d. *Gracilis.* e. *Rectis cruris.* f. Its tendon. g.	A portion of the *glutæus medius.*	
h. *Vaſtus internus* From the trochanter major and linea ſpera.	In the patella above the knee.	To extend the leg.
i. *Vaſtus externus*		
k. *Crureus*; from the fore part of the os femoris.		
l. The inſertion of the biceps flexoris cruris into the fibula. m. Tendines *gracilis* and *ſemitendinoſi* in the tibia.		
n. q. *Solæus.*		
o. *Peronæus longus*; from the upper part of the fibula.	Into the os metatarſi and cuneiforme.	To move the foot outwards, and to extend it a little.
p. *Extenſor longus digitorum*; from the upper and outer part of the tibia, and from the head of the fibula.	In the four firſt joints of the toes.	To extend the four ſmall toes.
r. *Flexor longus digitorum*; from the back part of the tibia.	In the firſt phalanx of the toes.	To bend the laſt joint of the toes.
s. Tendines of the *tibialis poſtici.*		
t. *Flexor brevis digitorum pedis*; from the inſide of the os calcis.	Into the ſecond phalanx of the ſmaller toes.	To bend the ſecond joint of the toes.

PLATE XII. *The ſecond layer of the muſcles on the poſterior part of the body.*

In the head and the neck.

Name and origin.	*Inſertion.*	*Action.*
a. *Temporalis.* b. *Maſſeter.* d. *A Portion of the complexus.* e. *Levator ſcapulæ.*		
c. *Splenius*; from three vertebræ of the neck and five of the back.	In the maſtoid proceſs.	To bring the head backwards.
Trunk.		
a. *Rhomboides major*; from the four ſuperior vertebræ of the back.	Into the baſis of the ſcapula.	To draw the ſcapula upwards, and inwards.
b. *Rhomboides minor*; from the three inferior vertebræ of the neck.		
c. *Serratus poſticus ſuperior*; from the three laſt vertebræ of the neck and two uppermoſt of the back.	Inſerted into the ſecond, third, fourth, and fifth ribs.	To elevate the ribs and dilate the thorax.
d. *Serratus poſticus inferior*; from two ribs of the back and three of the loins.	Into the lower edges of the four inferior ribs.	To depreſs the ribs and contract the thorax.
e. *Pars ſpinalis dorſi.* f. *Pars longiſſimi dorſi.* g. *Pars ſacrolumbaris.* h. *Serratus magnus.* i. *Tendo latus.* k. *Pars obliqui interni aſcendentis abdominis.* l. *Sphincter ani.*		
Superior extremity.		
a. *Supra ſpinatus*; from the upper part of the ſpine of the ſcapula.	Into the neck of the os humeri.	To raiſe the arm with others.
b. *Infra ſpinatus*; from the lower part of the ſpina ſcapulæ.	In the neck of the os humeri.	To draw the arm backwards.
c. *Teres minor*; from the inferior edge of the ſcapula.	As above.	To bend the arm outwards, backwards, and downwards.
d. *Teres major*; as the former.		
e. *Triceps extenſor cubiti.* f. *Its long head.* g. *Its ſhort head.* h. *Portio capitis tertii.* i. *Tendo tricipitis.* k. *Pars brachialis interni.* l. *Anconeus.* m. *Extenſor carpi radialis longior.*		
s. *Indicator*, from the middle and poſterior part of the ulna.	Into the poſterior part of the indicator.	To extend the indicator.
t. *Tres interoſſei manus externi*; from the ſides of the metacarpal bones.	In the joints of the next fingers.	To extend the fingers, &c.
u. The *tendo extenſorum digitorum.*		
Inferior extremity.		
a. *Glutæus medius*; from the upper part of the os ilii.	Into the greater trochanter.	To bend the thigh outwards, and backwards.
b. *Pyriformis*; from the os ſacrum within the pelvis.	Into the inner ſide of the great trochanter.	To move the thigh upwards, backwards, and turn it outwards.
c. *Gemini*; from the ſpinous proceſs and protuberance of the iſchium.	Into the inner cavity of the great trochanter.	To draw outwardly the thigh.
d. *Quadratus femoris*; from the external protuberance of the iſchium.	Between both trochanters.	To bring the thigh outwards.
e. *Vaſtus externus*; from the greater trochanter and linea aſpera.	Into the upper part of the patella and by an aponeuroſis, to the head of the tibia.	To extend the leg.
f. *Pars tricipitis magni.* g. *Caput longum tricipitis flexoris cruris*, and below it, *pars capitis brevis.*		
h. *Semitendinoſus*; from the iſchium.	On the inſide of the tibia.	To bend the tibia.
i. *Gracilis*; from the os pubis.	Into the tibia under the ſartorius muſcle.	To bend the tibia with the ſartorius.
k. A ſmall portion of the *vaſtus externus.*		
l. *Popliteus*; from the external condyle of the femur.	At the internal edge of the tibia below its head.	To bring the tibia outwards with others.
m. *Venter carnoſus plantaris*, and its tendon paſſing through the *soleus* muſcle.		
n. *Soleus.* o. The tendon of the *gemellus* cut off. p. *Tendo Achillis cum plantari.*		
q. *Peronæus longus*; from the upper part of the fibula.	Into the bones of the metatarſus, &c.	To move the foot outwards, and extend a little.
r. *Tendines extenſorum longiorum digitorum pedis*; with the *third peronæus*, and below them the *extenſor brevis digitorum.*		
s. *Flexor brevis minimi digiti pedis*; from the protuberance of the os calcis.	Into the ſecond phalanx of the four ſmall toes.	To bend the toes.

PLATE XIII. *The third layer of the muſcles on the anterior part of the body.*

On the head and neck.

Name and origin.	*Inſertion.*	*Action.*
a. Depreſſor labii ſuperioris, alæque naſi; from the ſuperior maxilla.	Into the upper lip and root of the ala of the noſe.	To draw the upper lip down and backwards.
b. Orbicularis oris; when all the other muſcles are taken off. *c. Buccinator.*		
d. Levator labii inferioris; from the inferior maxilla.	Into the under-lip and ſkin of the chin.	To pull upwards the lips and chin.
e. Sterno thyroideus; from the ſternum.	Into the thyroid cartilage.	To draw the larynx downwards.
Hyo Thyroideus — Scalenus anticus		
f. Scalenus medius; from the tranſverſe proceſſes of the neck.	In the uppermoſt rib.	To move the neck on both ſides, and to raiſe the ribs, &c.
	The trunk.	
a. Intercoſtales externi; obliquely from every rib.	From one rib to another.	To elevate the ribs in reſpiration, &c.
b. Intercoſtales interni; from the ſternum and the ribs.	Into the obtuſe angle of the ribs.	
c. Tranſverſalis abdominis. *d.* The inferior part of the tendon of the *tranſverſalis*, paſſing before the rectus and the pyramidalis, here cut off. Between thoſe portions, on both ſides, is the peritonæum and ligamenta veſicæ urinariæ, which formerly were the *umbilical arteries* and ligaments. Between this part and the os pubis is ſeen the *ſpermatic cord.*		
e. The inferior margin of the upper tranſverſal tendon, who paſſes behind the rectus, and adheres to the peritonæum.		
f. The interior lamella of the obliquus internus; between *f.* and *g.* is the poſterior lamella.		
g. The *linea alba*, from which the tendon of the obliquus, and the anterior lamella, of the internal obliquus, were diſſected. *g. Umbilicus.*		
	Superior extremity.	
a. Subſcapularis; from the inner ſurface of the ſcapula.	Into the inner protuberance of the os humeri.	To roll the humerus inwards to the ſide of the body, and to prevent the ligament from being pinched.
b. Teres minor; from below the ſcapula.	Into the neck of the humerus.	To draw the humerus backwards.
c. Coraco brachialis; from the coracoid proceſs.	In the middle of the humerus.	To move forwards and upwards.
d. Brachialis internus; from the middle of the humerus.	Into the coronoid proceſs of the ulna.	To bend the fore-arm.
e. Brachialis externus, or *caput tertium tricipitis*; from the os humeri.	Into the olecranon and the condyles of the humerus.	To extend the fore-arm.
f. Extenſor carpi radialis longior; from the os humeri.	In the bone of the metacarpus.	To extend the hand.
g. Flexor longus pollicis manus; from the upper part of the radius and condyle.	Into the laſt joint of the thumb.	To bend the laſt joint of the thumb.
h. Flexor profundus perforans; is divided in four tendons, paſſing under the annular ligaments of the wriſt, to the third bones of the fingers.		
i. Pronator radii quadratus; from the inferior inner part of the ulna.	To the lower part of the radius.	To turn the radius together with the hand inwards.
k. Adductor metacarpi minimi digiti; from the os unciforme.	Into the metacarpal bone of this finger.	To bring the finger toward the reſt.
l. Unus lumbricalium; the other three appear alſo along the tendons of the flexor profundus, and under them are the *interoſſei interni.*		
	The inferior extremity.	
a. Glutæus minimus; from the ſpinous proceſs of the ilium.	Into the back part of the trochanter major.	To pull the femur outwards and backwards.
b. Iliacus internus; from the tranſverſe proceſſes of the vertebræ in the loins.	Into trochanter minor femoris.	To bend the thigh, &c.
Inward, between *b.* and *c.* is the *pſoas magnus.*		
d. Adductor brevis femoris; *e. Adductor magnus*; from the os pubis.	Into the linea aſpera.	To bring the thigh inwards.
f. Gracilis; from the os pubis.	Into the tibia under the ſartorius.	To bend the leg.
g. Caput bicipitis flexoris cruris; from the os iſchium.	Behind into the fibula.	As the former.
h. Peronæus longus; from the fore part of the fibula.	Into the outſide of the metatarſal bone.	To move the foot outwards.
i. Peronæus brevis; from the upper part of the fibula.	Into the ſecond phalanx.	To bend the four toes.
Between the peronæus and tibia is to be ſeen the *tibialis poſticus.*		
k. The tendon of the tibialis poſticus, covering the tendon of the *flexor longus digitorum pedis.*		
l. Extenſor brevis digitorum pedis; from the fore part of the os calcis.	Into the next toes.	To extend the toes.

PLATE XIV. *The third layer of muſcles on the back part of the body.*

	Name and origin.	*Inſertion.*	*Action.*
	Head and neck.		
	a. Part of the buccinator.		
	b. *Complexus*; from ſix vertebræ of the neck and three of the back.	Under the ſplenius muſcle.	To bend the head backwards.
False	c. *Trachelo-maſtoideus*; from the ſternum and clavicle.	Into the maſtoid proceſs.	To bend the head forwards.
do	d. *Scalenus medius*; from the clavicle and two ribs.	Into the ſides of the vertebræ of the neck.	To bend the neck forwards.
	e. *Scalenus poſticus.*		
	The Trunk.		
	a. *Spinalis dorſi*; and below it the *multifidus ſpinæ.*		
	b. *Longiſſimus dorſi*; from the os ſacrum and ilium.	Into all the vertebræ of the back.	To bring the back backwards.
	c. *Sacro lumbaris*; as the former.	Into the vertebræ of the back and loins.	
	d. *Semi ſpinalis dorſi*; from the os ſacrum and vertebræ of the loins.	Into the vertebræ of the loins.	
	e. *Tranſverſalis abdominis*: from the ſides of the vertebræ in the loins.	Into the linea alba.	To contain and compreſs the abdomen, to expel the fæces, to facilitate the reſpiration.
	The ſuperior extremity.		
	a. *Teres major*; from the lower part of the ſcapula.	Into the upper part of the humerus.	To bring the humerus downwards.
	b. *Pars coraco brachialis*; from the coracoid proceſs.	In the middle of the os humeri.	To raiſe the humerus.
	c. *Pars coraco brachialis interni*; from the humerus under the deltoid muſcle.	Into the upper part of the ulna.	To bend the fore-arm.
	d. *Caput tertium tricipitis extenſoris cubiti*; from the neck of the ſcapula.	Into the olecranon.	To extend the fore-arm.
	e. *Extenſor radialis longior*; from the internal condyle of the humerus.	In the carpus near the thumb.	To bend the wriſt.
	f. *Extenſor radialis brevior*; from the external condyle of the humerus.	Into the bones of the metacarpus.	To extend the carpus.
	g. Part of the *flexor profundus perforans*; from the upper part of the ulna.	Into the third joint of the fingers.	To bend the fingers.
	h. *Supinator radii brevis*; from the upper part of the ulna.	Into the upper part of the radius.	To roll the arm outwards.
	i. *Pars adductoris pollicis*; from the metacarpal bone, that ſuſtains the middle finger.	In the inner part of the root of the firſt bone.	To pull the thumb towards the fingers.
	k. One of the *three interoſſei externi*; from the ſides of the metacarpal bones.	In the firſt joint of the fingers.	To bring the fingers toward the thumb.
	l. The tendons of the *extenſores digitorum*, jointly with the *lumbricales*, and *interoſſei*, forming the tendinous expanſion in the poſterior part of the four fingers.		
	The inferior extremity.		
	a. *Glutæus minimus*; from the ilium near the acetabulum.	Into the trochanter major.	To extend the femur.
	b. *Obturator internus*; from the inner ſide of the foramen pubis.	Near the trochanter major..	To roll the femur.
	c. *Semi membranoſus*; from the iſchium.	In the internal ſide of the tibia.	To bend the leg.
	d. Caput breve *bicipitis flexoris cruris*; from the iſchium and femur.	On the poſterior part of the fibula.	To bend the leg.
	e. *Triceps magnus*; from the os pubis and ilium.	Into the ſpine of the os femoris.	To turn the femur outwards.
	f. *Gracilis*; from the fore part of the os pubis.	Into the ham.	To bend the femur.
	Under the ham is the origin of both the *gaſtrocnemii externi* and *plantaris.*		
	g. *Poplitæus*; from the external condyle of the thigh.	Into the tibia under the ham.	To turn the tibia outwards.
	h. *Tibialis poſticus*; from the interoſſeus ligament.	Into the external bone of the metatarſus.	To bend the foot outwards.
	i. *Flexor longus digitorum pedis*; from the back part of the tibia, below its head, and divides into four tendons.	Into the extremity of the laſt joint of the four leſſer toes.	To bend the laſt joint of the toes.
	k. *Flexor pollicis longus*; from the back part of the fibula.	Into the laſt joint of the great toe.	To bend the laſt joint of that toe.
	l. *Peronæus longus*; from the fore part of the peroné.	Into the outſide of the os metatarſis.	To bend the foot.
	m. *Extenſor brevis digitorum pedis*; ariſes from the fore part of the os calcis.	Into the upper part of the toes, except the little one.	To extend the toes.

PLATE XV. *Fourth ſeries of muſcles in the anterior part of the body.*

In the head and neck.

Name and origin.	*Inſertion.*	*Action.*
a. *Levator palpebræ ſuperioris*; in the bottom of the orbit.	In the cartilage of the tarſus.	Raiſes the palpebra.
b. *Obliquus ſuperior*, vel *trochlearis*; neareſt to the optic foramen.	Paſſes the trochlea, and is implanted in the bulb of the eye near the rectus externus.	Gyrates the bulb round, and draws it inwardly.
c. *Attollens rectus oculi*, vel *ſuperbus*; from the ſuperior part of the foramen opticum.	In the tunica ſclerotica.	Moves the bulb of the eye upwards.
d. *Adductor rectus*, vel *bibitorius*; between the obliquus ſuperior and depreſſor.	In the external canthus of the eye.	Bends the bulb towards the noſe.
e. *Abductor rector*, vel *indignabundus*; between the foramen, opticum, and lacerum.	In the internal canthus.	Draws the bulb towards the ear.
f. *Depreſſor rectus*, vel *humilis*; from the inferior part of the optic foramen.	In the inferior part of the tunica ſclerotica.	Draws the eye downwards.
g. *Obliquus inferior*, ſeu *parvus*; neareſt to the orifice of the oſſeous lachrymal canal.	In the poſterior lateral part of the ſclerotica.	Moves upwards, downwards, and inwardly.
h. *Pterygoideus internus*; from the pterygoid proceſs of the os palatum.	In an angle of the lower jaw.	Draws the maxilla upwards and to the ſide.
i. *Obliquus ſuperior capitis*; from the firſt vertebra of the neck.	In the bone of the occiput near the maſtoid proceſs.	Draws back and retracts the head.
j. *Longi colli*; from the three ſuperior vertebræ of the neck, and from the 3, 4, 5, 6, proceſſes of the vertebræ of the neck.	Into all the vertebræ of the neck.	Turn the head anteriorly, backward, and obliquely.
k. *Scaleni medii*; from the proceſſes of the neck.	Chiefly in the dorſal ribs.	Turn backward and obliquely.
l. *Intertranſverſarii*; from the proceſſes of the vertebræ of the neck, and firſt of the back.	To the muſculus longiſſimus dorſi.	Draw back the neck.

Muſcles in the breaſt and abdomen.

a. *Levatores coſtarum primarum.* Fibres run down obliquely, although between the ribs from the extremity of the eleven uppermoſt ribs and laſt of the neck.	From one rib to another the muſcles climbing over the next rib are at length inſerted in the ſubſequent.	They ſtrengthen the beginning of the firſt rib, aſſiſted by others they elevate the reſt.

b. *Intercoſtales externi.* c. The firſt. d. *Intercoſtales interni.* e. The firſt. f. *Diaphragm.* g. A part laying towards the abdomen. h. Which looks towards the thorax. i. A foramen from which the œſophagus goes out.

k. *Quadratus lumborum*; poſteriorly from the os ilium.	In the vertebræ of the loins and laſt rib.	Moves the lumbi, and bends them obliquely.
l. *Pſoas parvus*; from the lumbar vertebræ.	In the juncture of the os ilium and pubis.	Bends the femur.
m. *Pſoæ magni*; from the lumbar vertebræ and laſt of the dorſal.	In the little trochanter and beneath.	They bend the femur anteriorly and incurve the back.
n. *Iliaci interni*; from the os ilium in the pelvis.	They are inſerted jointly with the pſoæ into the trochanter.	Bend the femur.
o. *Obturatores externi*; from the internal ſide of the pubis.	In the great trochanter.	They rotate the femur.
q. *Erectores penis*; from the os iſchium.	Into the corpora cavernoſa.	They ſerve for erection.
r. *Sphincter externus ani*; is an orbicular muſcle in the inteſtinum rectum.	It is connected to the os coccygis, inteſtinum rectum, bulb of the urethra, and internal ſphincter.	Cloſes the anus, reſtrains the fæces.

Muſcles in the ſuperior extremity.

a. *Scapulares.* b. *Supinator brevis.* c. *Pronator quadratus.*

d. *Flexor brevis pollicis*; from the bones of the carpus.	In the firſt bone of the pollex and os ſeſamoideum.	Bends the pollex, or thumb.

e. *Adductor pollicis.* f, g, h, i, k, l, m. *Interoſſei interni & externi*; from the bones of the metacarpus; are inſerted into the firſt joints of the adjoining fingers; they draw in the fingers.

Muſcles in the inferior extremity.

a. *Adductores magni femoris.* b. *Tibiales poſtici.* c. *Peronei breves.* d. *Interoſſei primi digitorum ſecundorum.* e. *Interoſſei ſecundi digitorum ſecundorum.* f. *Interoſſei ſecundi digitorum tertiorum.* g. *Interoſſei ſecundi digitorum quartorum.* h. *Adductor pollicis.*

PLATE XVI. *The fourth ſeries of muſcles in the poſterior part of the body.*

Head and neck.

Name and origin.	*Inſertion.*	*Action.*
a. *Recti poſtici minores*; from the firſt vertebra of the neck.	Near the great foramen of the occiput.	They move the head backwards.
b. *Recti poſtici majores*; from the ſecond vertebra of the neck.		
c. *Obliqui ſuperiores*; from the tranſverſe proceſs of the firſt vertebra.	In the os occipitis behind the maſtoid proceſs.	
d. *Obliqui inferiores capitis*; from the ſecond vertebra of the neck.	Into the proceſs of the firſt vertebra of the neck.	They rotate the head.
e. *Infra ſpinales cervicis*; between the proceſſes of the neck.	The muſcle ariſing from the ſuperior vertebra goes to the inferior.	They erect the neck and proceſſes proprius adducunt.

f. *Scaleni medii quinque.* g. *Intertranſverſarii colli quinque.*

The trunk.

a. *Levatores breviores* of the twelves ribs, from the tranſverſe proceſſes of the firſt eleven vertebræ of the back, and of the laſt of the neck.	From one ſuperior rib they run down to the next inferior.	They ſtrengthen the beginning of the firſt rib, and by means of other muſcles elevate the reſt.
b. *Levatores longiores* are proper to the four inferior ribs.	They run from one rib to another, where they are inſerted.	They elevate the ribs, and draw them backwards.

c. *Intercoſtales externi.* d. *Intercoſtales interni.*

e. *Pleura* conſiſts of a double membrane, ſurrounds the whole cavity of the thorax, and every where firmly adheres to it.

f. *Intertranſverſarii dorſi*, in the ſpace between the two proceſſes.	Connect the ſuperior to the inferior proceſs.	They draw in the tranſverſe proceſſes.
g. *Semiſpinales dorſi*, from the tranſverſe proceſſes of the 7, 8, 9, 10th dorſal vertebræ.	In the ſpinal proceſſes of the dorſal vertebræ.	They extend the ſpine obliquely and backwards.
h. *Spinales cervicis*, from the ſix ſuperior dorſal vertebræ.	In the ſpinal proceſſes of the vertebræ of the neck.	Extend the neck obliquely and backward.
i. *Multifidus ſpinæ*, from the os ſacrum and ilium, and tranſverſe proceſſes of the loins of the back and neck.	Into all the ſpinal proceſſes of the vertebræ of the loins, back, and neck.	They move the back obliquely and backward.
k. *Interſpinales dorſi*, l. *Interſpinales lumborum*, from the ſpinal proceſſes of the back and loins.	The ſuperior proceſſes are inſerted into the inferior.	They draw together the proceſſes.
m. *Intertranſverſarii lumborum*, from the tranſverſe proceſſes.	They fill the ſpaces between the tranſverſe proceſſes.	They draw the lumbar vertebræ.

n. *Quadratus lumborum.* o. *Diaphragm.* p. *Pſoæ.* q. *Iliaci.*

Muſcles in the ſuperior extremity.

a. *Subſcapulares.* b. *Supinatores.* c. *Pronatores teretes.* d. *Flexores breves.* e. *Adductores pollicis.*
g. i. k. l. m. *Interoſſei.*

Muſcles in the inferior extremity.

a. Tendons common to the *pſoæ magnæ* with the *iliaci interni.*	In the minor trochanter of the os femoris and below.	They bend the body and the femur anteriorly.
b. *Obturator externus*, from the os pubis and iſchium, and from the margin of the oval foramen.	In the baſe of the large trochanter of the femur.	It bends the femur inward, and rotates outward.
c. *Adductor magnus*, from the ſymphiſis of the pubis and iſchium.	In the linea aſpera, and below the condyle of the os femoris.	Moves the femur upwards, inwards, and rotates it outwards.

d. *Tibiales poſtici.* e. *Peronei.*

f. *Interoſſei* 3 *inferiores*, they draw the firſt phalanx of the digiti towards the pollex, great toe.
——— 4 *ſuperiores*, they draw the ſame phalanx from the pollex, or thumb.

g. *Tranſverſales pedis*, from the fifth bone of the metatarſus, and from the plantar aponeuroſis.	In the ſeſamoid bone and adductor pollicis.	It draws the thumb to the fingers.
k. *Adductor pollicis*, beneath the 4th, 3d, and 2d os metatarſi.	In the ſeſamoid bone, and firſt bone of the phalanx of the pollex.	It draws the pollex, or thumb.

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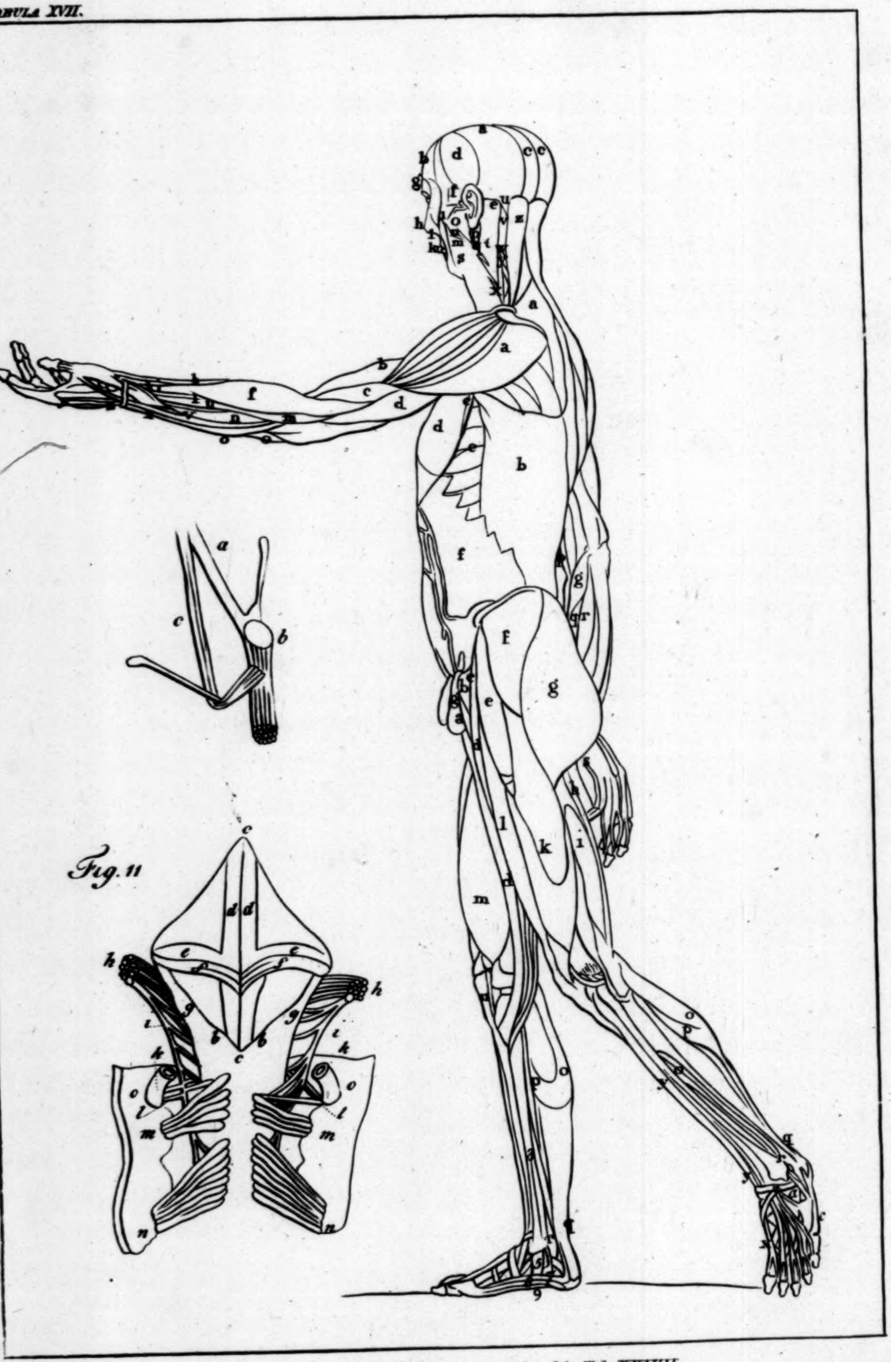

The Letters of the 11 Fig. were omitted in Tab. XXVIII.

PLATE XVII. *Firſt claſs of muſcles ſituated on the lateral part of the body.*

Of the head and neck.

a. b. c. Epicranius. *b.* Frontalis. *c.* Occipitalis. *d. e. f.* Muſcles of the ear. *d.* Attollens. *e.* Retrahens. *f.* Anterior. *g.* Orbicularis palbebrarum. *h.* Compreſſor naris. *i.* Naſalis labii ſuperioris. *k.* Orbicularis oris. *l.* Zygomaticus major. *m.* Depreſſor anguli oris. *n.* Buccinator. *o.* Maſſeter. *p.* Pterygoideus externus, *q.* Stylohyoideus. *r.* Styloglosſus. *s.* Latiſſimus colli. *t.* Sterno maſtoideus. *u.* Biventer cervicis. *v.* Splenius capitis. *w.* Splenius colli. *x.* Scalenus medius. *y.* Levator ſcapulæ. *z.* Cucullares.

Of the trunk.

a. Cucullares. *b.* Latiſſimus dorſi. *c.* Serratus anticus. *d.* Pectoralis. *e.* Serratus magnus. *f.* Obliquus externus abdominis. *g.* Cremaſter.

Of the ſuperior extremity.

a. Deltoides. *b.* Biceps. *c.* Brachialis internus. *d.* Triceps. *e.* Ulnaris internus. *f.* Supinator longus. *g.* Pronator teres. *h.* Radialis internus. *i.* Sublimis. *k.* Flexor longus pollicis. *l.* Tendo radialis externi longioris alterius. *m.* Radialis externus longior. *n.* Radialis externus brevior. *o.* Ulnaris externus. *p.* Supinator longus, *q.* Radialis internus. *r.* Sublimis. *s.* Flexor longus pollicis. *t.* Tendo radialis externi longioris alterius. *u.* Radialis externus longior. *v.* Radialis externus brevior. *w.* Extenſor communis digitorum manus. *y.* Indicatoris tendo. *z.* Extenſor proprius digiti auricularis. a. Abductor longus pollicis. b. Extenſor minor pollicis. c. Tendo extenſoris longi pollicis. d. Communicis tendo extenſoris, majoris et minoris pollicis. e. Ligamentum armillare exterius. f. The ligament which binds the tendons of the abductor longus and the extenſor minor pollicis. g. Ligamentum interius carpi. h. Abductor brevis pollicis. i. Opponens pollicis. k. Abductor pollicis. l. Abductor indicis. m. Lumbricales. n. Interoſſei. o. Palmaris brevis. p. Flexor brevis minimi digiti. q. Abductor minimi digiti. r. Adductor oſſis metacarpi quarti.

Of the inferior extremity.

a. Abductor longus femoris. *b.* Pectineus. *c.* Pſoas magnus. *d.* Sartorius. *e.* Tenſor vaginæ femoris. *f.* Gluætus medius. *g.* Glutæus magnus. *h.* Semitendinoſus. *i.* Biceps cruris. *k.* Vaſtus externus. *l.* Rectus cruris. *m.* Vaſtus internus. *n.* The ligament joining the patella to the tibia. *o.* Gemelli. *p.* Solæus. *q.* Tendo Achillis. *r.* Tendo plantaris. *s.* Peronæus longus. *t.* Ligament belonging to the peronæus longus. *u.* Peronæus brevis. *v.* Ligament belonging to the peronæus brevis. *w.* Extenſor longus digitorum. *x.* Tendon of the extenſor proprius pollicis. *y.* Tibialis anticus. *z.* The ligament on which the tendons on the ſide of the leg and back of the foot are ſpread. *a.* Extenſor brevis digitorum. *b.* Interoſſei. *c.* Abductor minimi digiti. *d.* Flexor brevis digiti minimi.

Peculiarities of the right inferior extremity.

1. Flexor longus pollicis. 2. Ligament by which the tendon of this muſcle is tied down. 3. Flexor longus digitorum. 4. Tendon of the tibialis poſticus. 5. Ligament which lies over the tendons of the flexor longus digitorum pedis and tibialis poſticus. 6. Ligament which confines the tendon of the tibialis anticus. 7. Abductor pollicis. 8. Flexor brevis pollicis. 9. Flexor brevis digitorum.

PLATE XVIII. *Of various muſcles.*

Figure I. *Of the eye.*

a. The bulb. *b.* The optic nerve. *c.* The trochlear, or obliquus ſuperior muſcle. *d.* The trochlea with part of the os frontis. *e.* Obliquus inferior. *f.* Levator oculi. *g.* Depreſſor oculi. *h.* Adductor oculi. *i.* Abductor oculi.

Figure II. *Muſcles of the anterior part of the cartilage of the ear.*

Name and origin.	*Inſertion.*	*Action.*
a. Helicis major, from the acute proceſs of the helix.	Inſerted on the outer part of the helix.	These two muſcles appear to be of uſe to extend the cartilage of the ear, that ſounds may be more diſtinctly heard
b. Helicis minor, from the inferior and anterior part of the helix.	Into the edge of the helix.	
c. Tragicus, from the middle and outer part of the concha, near the root of the tragus.	Into the anterior part of the tragus.	To extend the tragus.
d. Antitragicus, from the external part of the antitragus.	Into the tip of the concha in the fiſſure itſelf of the cartilage of the ear.	To dilate the mouth of the concha.

Figure III. *Muſcles on the poſterior part of the cartilage of the ear.*

a. Tranſverſus auris, ariſes oppoſite to the outer ſide of the antihelix and ſcaphæ.

Muſcles of the internal ear.

Laxator tympani; from the ſuperior and internal part of the tympanum.	Into the handle of the malleus.	All theſe muſcles are employed in the action of hearing, to convey and moderate ſounds.
Externus mallei; from the extremity of the ſpinous proceſs of the ſphenoid bone.	Its tendon is inſerted into the long proceſs of the malleus.	
Tenſor tympani; from the cartilagineous extremity of the Euſtachian tube.	By its tendon into the ſmall orifice of the oſſeous canal.	
Stapedius; from the little cavern of the os petroſum.	By its tendon into the poſterior part of the ſtapes.	

Figure IV. *Muſcles on the poſterior part of the larynx and pharynx.*

a. Upper part of the membrane of the pharynx. *b.* The trachea taken from its ſituation. *c.* The œſophagus cut off. *d.* The interior tranſverſe fibres of the œſophagus. *e.* The exterior fibres deſcending obliquely backwards. *f. Conſtrictor inferior* pharyngis. *g. Conſtrictor medius* pharyngis. *h. Cornu oſſis hyoidis.* *i. Conſtrictor ſuperior* pharyngis. *k.* That part of it which unites with the buccinator. *l. Stylo pharyngeus.*

Figure V. *Connection of the levator ani, with the inteſtinum, rectum, and urethra.*

a. Urethra. *b. Bulb of the urethra.* *c. Sphinctus internus.* *d. Levator ani.*

Figure VI. *The corpora cavernoſa of the penis and urethra, the acceleratores urinæ, tranſverſales & erectores penis.*

a. The corpus cavernoſum of the penis cut off. *b.* The corpus cavernoſum of the urethra ſeparated. *c. Erector* penis. *e. Accelerator* urinæ. *f. Tranſverſalis* penis alter.

Figure VII. *Of the ſphincter ani and bulb of the urethra.*

a. The urethra and corpus cavernoſum. *b.* The bulb. *c.* Part of the ſphincter aſcending obliquely. *d.* The angular part which is inſerted into the perinæum.

Figure VIII.

a. The anterior part of the anus. *b.* Its origin from the ſpinous proceſs of the os iſchium. *c.* The poſterior part, which appears to be external. *d.* Its inſertion into the os coccygis. *e.* The internal ſphincter ani. *f.* Anus.

Figure IX.

a. Inſertion of the ſphincter into the os coccygis. *b.* The anus.

Figure X. *Muſcles of the internal part of the hand.*

1. Abductor pollicis. 2. Adductor pollicis. 3. Flexor brevis. 4. Quadratus, or palmaris brevis. 5. Ligament of the carpus. 6. Abductor minimi digiti. 7. Probe paſſed under the tendons of the perforati. 8. Probe paſſed under the tendons of the perforans. 9. Lumbricales. 10. Perforatus. 11. Flexor carpi radialis. 12. Flexor carpi ulnaris.

Figure XI. *Muſcles on the back of the foot.*

1. Tendo Achillis. 2. Part of the aſtragalus which correſponds with the tibia. 3. The tendon of the tibialis anticus. 4. Tendon of the extenſor pollicis pedis longus. 5. Tendons of the extenſor communis digitorum. 6. Extenſor pollicis pedis brevis. 7. Extenſor digitorum brevis. 8. Communication of the tendons of the extenſor longus, and extenſor brevis.

PLATE XIX. *The anterior arteries of the body.*

a. The heart.

b. The aorta; it ariſes from the left ventricle of the heart, gives off the coronary arteries, and makes the great arch towards the dorſal vertebra, then deſcends through the opening of the diaphragm into the abdomen, in which it proceeds near the left ſide of the back to the laſt vertebra of the loins, and there is divided into the two iliac arteries.

c. The coronary arteries; they ariſe from the aorta under its arch, and are diſtributed into the ſubſtance of the heart and auricles.

d. The great arch; it gives off three branches: 1. *the arteria innominata*. 2. *The left carotid*. 3. *The left ſubclavian.*

e. The arteria innominata; it ariſes from the arch of the aorta, is immediately divided into two branches; *g.* the right ſubclavian, and *h.* the right carotid.

The carotid arteries aſcend in a ſtraight line to the larynx, and are there divided into the external and internal.

The external carotid aſcends by the ear to the temples, and ramifies into eight branches: 1. the ſuperior thyroid; 2. the ſublingual; 3. the inferior maxillary; and 4. the external maxillary; 5. the pharyngeal artery; 6. the occipital; 7. the external auditory; and 8. the temporal, from which ariſes the frontal.

The internal carotid in the cavity of the cranium gives off the cerebral branches.

i. The left ſubclavian.

The ſubclavian arteries near the clavicles are inflected outward, like an arch into the ſubmaxillary cavity, where they are called the ſubmaxillary arteries.

The ſubclavian artery gives off four branches.

1. *The internal mammary*; it deſcends near the ſternum, and ſends forth, 1. the arteria mediaſtina; 2. the thymic A. 3. the pericardic, from which ariſes the ſuperior diaphragmatic; and 4. the inferior trachæal.

2. *The cervical*; it goes to the muſcles of the neck.

3. *The vertebral*; it aſcends through the ſeven foramina of the tranſverſe proceſſes of the neck, and enters the cavity of the cranium.

4. *The ſuperior intercoſtals*; they run on the inferior margin of the ribs to the ſternum.

k. The axillary artery gives off four branches; 1. the external mammary; 2. the inferior thoracic; 3. the external and internal ſcapulary; 4. the humeral, then

l. The brachial artery; it runs under the arm to the bend of the elbow, and is divided into three branches.

m. 1. *The cubital artery*, runs down near the elbow, arrives at the palm of the hand, and there forms the palmary arch.

n. 2. *The radial artery*, deſcends along the radius into the palm of the hand.

3. *The interoſſeal artery*, external and internal, are diſtributed to the muſcles of the fore-arm.

o. The palmary arch; from this ariſe the four digital arteries.

The branches of the aorta deſcendens.

The aorta from the arch to the diaphragm gives off four branches; 1. the bronchial artery; 2. the œſophageal; 3. the eight pairs of intercoſtals; 4. the inferior diaphragmatic arteries.

a. The bronchial artery; going to the bronchiæ and pulmonary veſicles.

The œſophageal artery goes to the inferior part of the œſophagus.

The inferior intercoſtals go to the ſternum along the inferior margin of the eight lower ribs.

The inferior diaphragmatic arteries go into the diaphragm.

The aorta ſends off eight branches in the *abdomen*.

b. 1. *The coeliac*, which is ſolitary; under the ſtomach it is divided into three branches; 1. *The arteria ſtomachica*; 2. *The ſplenic* A. 3. *The hepatic.*

c. 2. *The ſuperior meſaraica* A. it tends towards the jejunum, cœcum, and right colon.

d. 3. *The renal arteries*, which go to the kidneys.

e. 4. *The ſpermatic arteries*; they go to the teſticles in men, but in women to the ovaria.

f. 5. *The inferior meſenterica*; it goes to the left colon, and to the rectum.

g. 6. *The lumbal arteries*; which go to the muſcles of the loins and abdomen.

h. 7. *The ſacral*; they paſs near the os ſacrum.

i. 8. *The iliacs*; near the laſt vertebræ of the loins the aorta is divided into two.

The iliac arteries are divided into *external* and *internal*.

The internal iliac artery is called the *hypogaſtric*; in the fœtus it divides itſelf into ſix, in the adult into five branches, which are divided within and without the pelvis.

k. The external iliac; it comes out of the cavity of the pelvis under Poupart's ligament, and runs backward into the internal part of the thigh to the ſubpopliteal cavity.

l. In this courſe it is called the *crura* or *femoral artery*, and under the ham the *ſubpopliteal*.

m. The external iliac artery; at its exit from the pelvis it gives off the epigaſtric, which aſcends under the rectus muſcle to the ſternum.

n. The crural artery, gives many muſcular branches to the muſcles of the thigh and lateral arteries, which anaſtomoſe with the *recurrent genual arteries* from the tibial.

o. The popliteal artery, is divided into the *anterior* and *poſterior tibial*, and the *peroneal*.

p. The anterior tibial artery perforates the interoſſeal ligament, deſcends to the back of the foot, (penes pollicem pedem perforat) and runs into the ſole of the foot.

q. The poſterior tibial deſcends in the internal and poſterior part of the tibia.

r. The peroneal, or *fibulary artery*, deſcends behind the fibula, perforates the inferior part of the interoſſeal ligament, and runs on the back of the foot.

The plantary arch is formed by the anterior and poſterior tibial, and the peroneal, in the ſole of the foot.

The digital arteries (of the foot) ariſe from the plantary arch.

PLATE XX. *The poſterior arteries of the body.*

Name, origin, trunks.	*Branches.*	*Terminations.*
a. *The occipital artery*; emerges under the ſplenic muſcle.	Is diſtributed through the occiput.	Sends forth branches to the rectus, oblique, complex muſcles, &c.
b. *The poſterior auricular*; a branch of the temporal.	Often ariſes from the occipital artery.	In the poſterior muſcles of the ear, the biventer, maſtoideus, &c.
c. *The dorſalis ſuprema*; moſtly from the thyroid artery. The branches are,	1. Scapularis; 2. ſpinalis; 3. dorſalis ſcapulæ.	To the trapezius, ſplenius, coraco-hyoideus, &c.
d. *The occipital arch.*	Formed by the union of the branch of the oppoſite ſide.	Makes anaſtomoſis.
e. *The ſuperior intercoſtal* A.		In the adjoining perioſteum of the vertebra.
f. *The intercoſtal aortic arteries*; nine pair from the deſcending aorta.	The firſt ariſes between the third and fourth vertebra of the neck. The ninth under the 11th rib.	Sends off the A. broncheal; A. the dorſal of the ſecond & third.
They ſeparate near the head of the rib into two branches.	1. The dorſal branch; 2. The intercoſtal branch, which continually divides and again unites.	In the back and ſpinal marrow.
g. *The lumbal arteries*; ariſe from the aorta almoſt at right angles.	They have a ſimple trunk.	Anaſtomoſe with the abdomen and epigaſtric artery.
h. *The trunk of the axillary artery*; ariſes from the ſubclavian.	It bifurcates into the humeral and brachial arteries.	It nouriſhes the os humeri and its muſcles.
i. *The inferior ſcapulary* A. from the ſubclavian; often from the ſcapularis interna.	Is diſtributed all through the ſcapula.	Goes to the long extenſor and infra-ſpinal muſcles, &c.
k. *The poſterior circumflex* A. from the axillary A.		To the head of the humerus, deltoid, extenſor longus, &c.
l. *The trunk of the humeral* A. from the axillary, often from the brachial artery.	Nouriſhes the muſcles of the ſcapula and humerus.	Is changed into the radial and ulnar arteries.
m. *The profunda humeri*; from the humerary artery.	Follows the linea aſpera of the humerus.	To the ſhort and long extenſors, to the ſkin, &c.
n. *The poſterior and ſuperior interoſſeous artery.*	Branches; 1. poſterior; 2. inferior.	To the extenſors of the little fingers.
o. *The ſuperior dorſal* A. *of the ſcapula*; moſtly from the thyroid.	1. *The arteria nutritia* of the ſcapula.	In the perioſteum of the ſcapula.
Its principal branches are;	2. *The dorſal* A.	In the head of the humerus and back of the ſcapula.
	3. *The ſupra-ſpinalis* A.	Upon the ſpine of the ſcapula.
	4. *The infra-ſpinalis* A.	Below the ſpine of the ſcapula.
	5. *The muſcular* A.	In the adjacent muſcles.
p. *The trunk of the axillary artery.*	Paſſes in the axilla.	In the upper circumflex artery
q. *The poſterior circumflex artery*; from the axillary artery.	Anaſtamoſes with the arteria profunda of the humerus.	To the epiphyſes and os humeri.
r. *The arteria profunda of the humerus*: from the axillary A, it ſends forth many branches.	1. *The ſuperior*; 2. *the* A. *nutritia of the humerus*; 3. *the profunda of the radius*, &c.	Are diſtributed to the deltoid medulla of the humerus, radius, ſkin, &c.
	Sends off many perforating branches.	Into the ſpinator brevis, the radius, &c.
	1. *The median* A. 2. *the radial*; 3. *the carpeo-radial*; 4. *the carpeo-ulnal.*	The carpal is produced from the anaſtamoſis with other arteries.
u. *The radial artery*; from the humerary artery in the top of the humerus, often goes off from the trunk at the bend of the elbow.	1. *The cutaneal muſcular* A. 2. *the recurrent radial* A. 3. *the profundus*; 4. *the* A. *volaris anaſtomoticus*, &c.	Are diſtributed through the metacarpus, carpus, fingers, back of the palm of the hand, it communicates with others
w. *The poſterior iliac artery.*	Above the pyramidal muſcle.	To the pyramidal muſcle, &c.
x. *The iſchiadic artery.*	Is variouſly divided about the tuberoſity of the iſchium.	1. *The hæmorrhoidal* A. 2. *the arteria pudenda.*
y. *The popliteal artery* is a continuation of the crural under the poples, or ham.	1. *The poſterior tibial* A. 2. *the anterior tibial*; 3. *the peroneal.*	The articular, interoſſeal, cutaneal, muſcular arteries, &c.
z. *The anterior tibial artery.*	Perforates the interoſſeous ligament.	Goes down to the back of the foot.
The poſterior tibial artery.	Branches: 1. *the interior*; 2. *the poſterior.*	1. *The poſterior tibial* A; 2. *the peroneal.*
a. a. *The anterior peroneal artery.*	Perforates the interoſſeous ligament.	Is now called the poſterior peroneal.
The poſterior peroneal artery.	Deſcends near the fibula.	Is united with the tibial.

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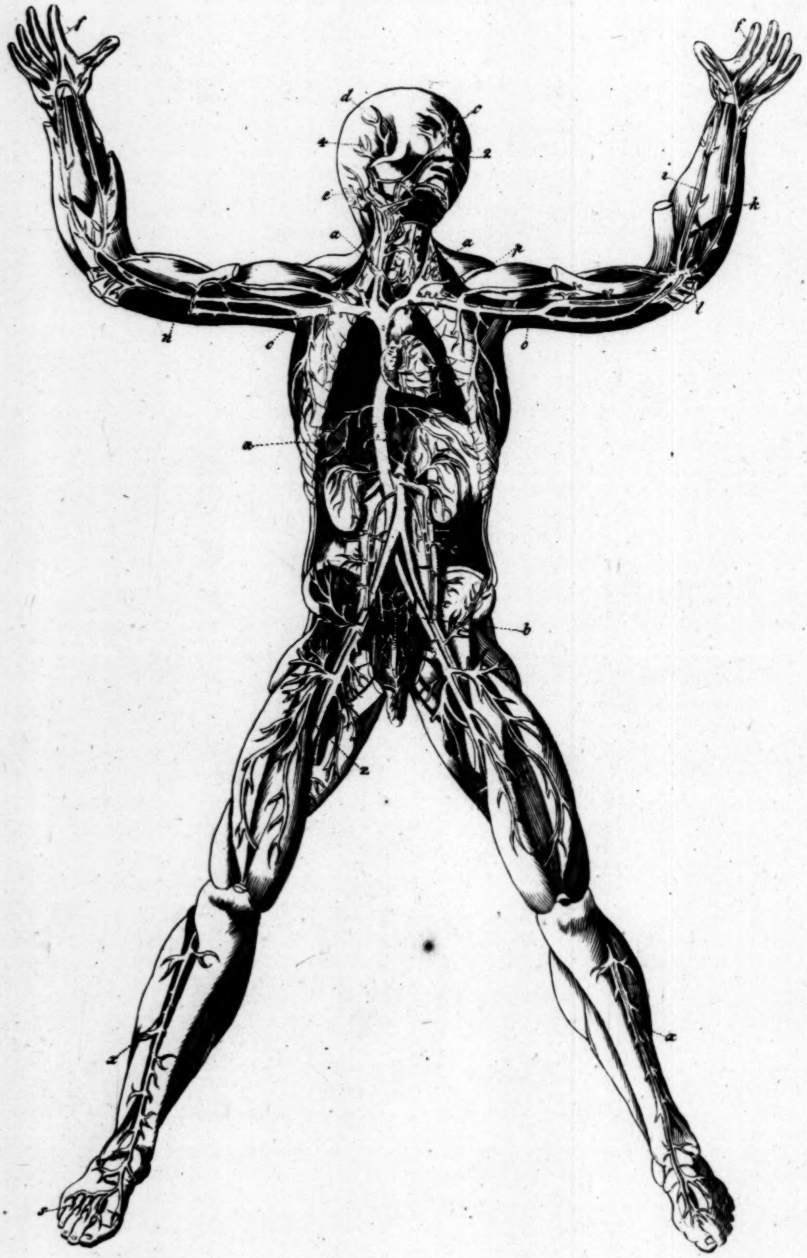
TABVLA XXI.



Schola et historia Medicinæ a Gul Rowley

Royce sc.

PLATE XXI. *The veins.*

All the blood of the head, face, and neck.	Is diſcharged.	Into the two internal and two external jugular veins.
The blood driven through the arteries into the cerebrum and cerebellum.	Flows into the ſinuſſes of the dura mater.	Is received by the internal jugular veins.
a. The *internal jugular veins*; they deſcend into the neck.	Receive the *thyroid b.* and *internal maxillary veins.*	Are emptied into the ſubclavian veins.
Veins 1. *c*. The *frontal*; 2. the *angular*; 3. *d*. the *temporal*; 4. the *auricular ſublingual*; 5. *e*. the *occipital*.	Deſcend in the lateral parts of the neck under the common integuments.	Convey the blood into the external jugular veins, which carry it into the ſubclavian veins.
f. The *digital veins of the hand*; ariſe from the extremities of the arteries, through innumerable anaſtamoſes.	Flow into 1. *g*. the *cephalic vein of the thumb*, and unite with the inferior.	Is emptied into the external radial vein.
	2. Into the *ſalvatella*; *h*. this comes to the ſecond finger.	This flows into the external and internal cubital.
i. The *external radial vein*; runs down the length of the radius.	By its union with the *mediana cephalica minor*.	Becomes the *cephalic major*, which adheres to the ſuperior part of the arm.
k. *Veins* 1. The *external and internal cubital*; 2. the *collateral*; 3. the *ſuperior profound veins*.	From the flowing of theſe veins into the inferior part of the humerus.	Is formed the *vena baſilica l*.
m. The *larger cephalic median vein*; 2. the *inferior profunda*; 3. the *internal radial*.	Flow into the flexure of the arm, and become the *vena mediana*.	The median vein unites at one of its ends with the cephalica magna, and at the other with the baſilic.
The *cephalic* and *baſilic veins*.	Unite in the humerus.	Run into the brachial vein.
n. The *brachial vein*.	Aſcends in the internal ſurface of the humerus to the ſubmaxillary cavity.	When entered into this cavity it is called the axillary vein.
o. The *axillary vein*; it receives	1. The *thoracic veins*; the *muſcular* and *ſcapulary*.	When it reaches the clavicles it is called the *ſubclavian vein*.
p. The *ſubclavian veins*; are a continuation of the axillary veins, and receive the blood from	1. The *internal jugular veins*.	From the head.
	2. The *external* ———	From the external parts of the head.
	3. The *vertebral* ———	From the *veins* and *vertebral ſinuſſes*.
Both ſubclavians unite on the right ſide, and thence convey the blood into the right *atrium* (*i.e. venous ſinus*) of the heart through the vena cava.	4. The *mediaſtina*; 5. the *pericardic*; 6. the *diaphragmatic*, or *phrenic*; 7. the *internal mammary*; 8. the *laryngeal*; 9. the *ſuperior intercoſtal*; 10. the *vena azygos*.	All theſe come from the internal parts of the thorax and neck.
r. The *vena azygos*, or *vena ſine pari*.	Is compoſed by the conflux of the following veins:	1. The *bronchial*; 2. the *ſuperior æſophageal*; 3. the *vertebral*; 4. the *ſuperior right intercoſtals*; 5. the *left inferior intercoſtals*.
s. The *digital veins of the foot*; ariſe from the extremities of the toes.	Are emptied into the *cephalic vein of the great toe t.* 2. the *ſaphena u.* and 3. the *dorſal vein of the foot w.*	Theſe run into the *anterior tibial vein*.
The *vena plantaris*.	Inferius.	Empty themſelves into the poſterior tibial vein.
—— *ſurales*.	Superius.	
x. The *anterior* and *poſterior tibial*.	Unite with the *vena peronea*.	And are then called the *popliteal vein*.
y. The *popliteal vein*; it aſcends by the poples.	After it is out of the ham.	It is called the *crural*, or *femoral vein*.
z. The *crural vein*; in the pelvis it is called the *external iliac*.	It receives the external pudenda.	It paſſes into the *inferior vena cava*.
	Unites with the internal iliac vein.	
a. The *vena cava inferior*; begins from the iliac veins to the laſt vertebræ of the loins; near the heart it unites with the *vena cava ſuperior* in the *anterior ſinus of the heart*.	In the cavity of the pelvis and abdomen the following veins flow to them.	1. The *ſacral*; 2. the *lumbal*; 3. the *right ſpermatic*; 4. the *renal*; 5. the *hepatic*; 6. the *inferior diaphragmatic*.
b. The *internal iliac vein*; receives	1. The *external hæmorrhoidal veins*. 2. The *hypogaſtric veins*.	Into theſe flow 1. the *internal pudendal veins*; 2. the *dorſal veins of the penis*; 3. the *obturator*.

PLATE XXII. *The glands and lacteal veſſels.*

Figure I.

a. A portion of the jejunum.

b. A branch of the ſuperior meſenteric artery.

c. c. c. The lacteals conſpicuous with their little knots.

d. An iſland of lacteals.

e. A meſenteric gland, receiving the chyle from the veſſels ſpoken of.

f. An oblong gland with a ſimple ingredient veſſel.

g. A gland conſiſting of ſix or ſeven lymphatic inferent ducts.

h. The vaſa egredientia, vel efferentia, of a gland migrating to another gland of the next order.

The *lymphatic veſſels*, when they ſucceſſively enter many glands, the firſt gland is then ſaid to be of the firſt order, or genus; the next one to this, of the ſecond order, or genus; but this diviſion of Winſlow is uncertain, and of no uſe in phyſiology, it may with propriety be omitted, becauſe one and the ſame gland may receive from many glands and new veſſels of different orders which are not yet called glands.

i. The thoracic duct; there are two, a primary and a ſecondary one.

k. Part of the aorta deſcendens.

l. The receptaculum chyli.

A dilatation of the receptaculum is often wanting in men.

Haller ſays, it is wanting ſix times in 21. Dead human bodies, in which I have ſhewn the thoracic duct, I have ſeen the ampulla, that is, the ciſtern of the chyle.

m. The trunks of lacteals opening into the receptaculum.

n. The cœliac artery.

o. The emulgent arteries.

p. The inferior meſentric artery.

q. The iliac arteries.

r. The ſacral artery.

s. Some trunks of the abdominal viſcera and lower extremities.

t. The thoracic duct ariſes from the receptaculum.

Figure II.

A little membrane compoſing a lymphatic veſſel viſible in a microſcope.

a. A membrane of a lymphatic.

b. Small globules diſperſed through the membranes.

c. Fibres, or ſmall ſtriæ, reſembling ſmall veſſels.

Figure III.

The duct of the thoracic tunic viſible in the microſcope.

a. The exterior tunic of the thoracic duct, conſiſting of large globules joined together in cluſter.

b. The interior tunic conſpicuous with like globules, but leſs.

Figure IV.

An injected gland, filled with mercury from the abſorbents only, exhibiting a congeries of convoluted lymphatic veſſels.

Figure V.

A gland filled with mercury, injected by the abſorbents, in this the cells are very evident.

PLATE XXIII. *The glands and abſorbents.*

Name and Situation of the glands.	*Inferent veſſels.*	*Efferent veſſels.*
	The ſmall veſſels cannot be ſeen by the naked eye, on account of the great exility of their origins. Injections from the trunk to the leſſer veſſels do not penetrate, the valves oppoſe them: mercury eaſily proceeds from the ſmall trunks to the larger veſſels, and points out the way.	The ſmall veſſels united with others make branches, by the union of many of which they become trunks, which at length are terminated in the thoracic duct and ſubclavian veins, where they empty their chyle and lymph.
The *tibial gland*; in the middle of the tibia.	In the ends of the toes.	Are emitted to the popliteal glands.
The *popliteal glands*; under the poples.	In the parts ſituated under the knee.	Proceed to the inguinal glands.
The *inferior inguinal glands*; they conſtitute the ſeat of peſtilential buboes.	The crural veſſels ſwell when pus is abſorbed from ulcers of the foot.	Theſe veſſels go to the iliac region and its glands.
The *ſuperior inguinal glands*; venereal buboes ariſe in them.	The veſſels come from the genitals and nates.	Theſe veſſels proceed as the above.
The *iliac glands*; in the pelvis near the arteries and iliac veins.	Receive the lymph from the inferior parts and from the pelvis.	Promote lymph ad ſuperiora.
The *meſenteric glands*; are innumerable through the whole meſentery.	Receive the lymph from the lower extremities, inteſtines, &c.	Go into many trunks, and thence to the thoracic duct.
The *renal* and *atrabilary glands*.	From the kidneys and atrabilary capſules.	Go to the receptaculum chyli.
The *receptaculum chyli*, or ductus Pecquetianus, diſcovered by John Pecquet, 1649. It is often wanting.	Is compoſed of two trunks of abſorbents and one of the lacteals within the diaphragm.	Where its dilatation ends, it is called the thoracic duct.
The *primary thoracic duct*; is the principal trunk of the abſorbent ſyſtem.	Receives the chyle and lymph of the abdomen and lower extremities from the receptacle.	Perforates the diaphragm, aſcends the thorax, exonerates itſelf in an angle of the left ſubclavian and jugular veins.
The *right abſorbent*, or *ſecondary duct*; ariſes from four large lymphatic trunks.	The lymph comes from the right ſide of the liver, diaphragm, heart, lungs, head, &c.	This duct empties itſelf into the right ſubclavian and jugular vein.
The *glands of the ſtomach*, or *gaſtric glands*; are four or ſix.	They are 1. The coronary veſſels.	Go to the thoracic duct.
	2. The left gaſtric.	Unite with the lymphatics of the omentum, ſpleen, and pancreas.
	3. The right gaſtric.	They flow with the pyloric of the omentum and liver.
The *hepatic glands*; a great plexus near the vena portæ.	The veſſels on the liver are diſtinguiſhed by ſeveral diviſions.	They ſend the lymph to the pericardiac glands.
The *cardiac*, or *pericardiac glands*; near the riſe of the carotid artery.	1. The right coronary veſſels of the heart; 2. the left.	Both flow and enter the thoracic duct.
The *glands of the lungs*; are rarely found in the ſubſtance of the lungs.	Receive the lymph from the lungs.	Empty themſelves in the thoracic duct, or ſubclavian veins.
The *brachial glands*; in the flexure of the arm.	1. The *baſilic* veſſel in the hand, from the palm and little finger; 2. the *cephalic* from the pollex and index; 3. the *mediam* from the other fingers.	They tend to the axillary glands, or the thoracic duct.
The *axillary glands*; under the clavicle and in the axilla; they ſwell from a cancer of the breaſt.	The veſſels come from the head, neck, arms, ſcapula, breaſts, heart, lungs, and liver.	On the left ſide they are exonerated in the primary or ſuperior trunk; on the right ſide they are emptied into the ſecondary or inferior trunk.
The *glands in the face*; near the zygomatic proceſs and parotid glands.	Several veſſels come from the internal canthus of the eye, from the noſe and lips.	They deſcend to the neck, and unite with other cervical trunks.
The *cervical glands*; are very many; are the ſeat of ſcrophula and ſtruma.	The veſſels come from the external and internal parts of the head and neck.	Two trunks, a right and left, flow into the ſubclavian veins.

PLATE XXIV. *Baſis of the Cranium.*

A. *Tentorium cerebelli*, or tentorium of the brain; the part which comes to the anterior clinoid proceſſes is removed.

B. The *longitudinal ſinus* of the dura mater. The poſterior end is bifurcated; the interior and duplicated lamina of the dura mater, which form the falciform proceſs; the lateral proceſſes and falx of the cerebellum has peculiar cavities, which are called *ſinuſes*.

The conjunction of the four greater ſinuſes is called *torcular of Herophilus*; the *longitudinal* ſinus to the end, for the moſt part, is a continuation of the other ſinus in the right tranſverſe proceſs, to which the other ſinus is joined belonging to the left tranſverſe proceſs; theſe are called *lateral* ſinuſes. In that place, in which the longitudinal ſinus is changed into the right lateral, another ſinus is opened for a proceſs of the cerebellum, which is called *occipital*; then another, which runs into the ſame place from the interior parts of the cerebrum, venous, as it were, in its nature, and is called the *fourth* ſinus, &c.

C. The *fourth bifurcated ſinus*; inſerted into the right tranſverſe crus, and into the left other crus; yet this is very rare.

D. The remaining part of the *falx cerebri*.

E. E. The great veins of the tentorium.

F. The veins of the cerebrum inſerted by tranſverſe ſinuſes in the tentorium cerebelli.

G. The opening of the poſterior occipital ſinus.

H. H. The right and left poſterior *occipital ſinuſes*.

I. *Falx cerebelli*; placed between the two lobes of the cerebellum.

K. K. The *great tranſverſe*, or two *lateral ſinuſes*.

L. L. The *jugular foſſæ*, or depreſſions: into theſe foſſæ, beſides the tranſverſe, petroſe, and occipital ſinuſes, are uſually inſerted the vertebral veins ſent into the great jugular ſinus by a peculiar meatus of the occipital bone, as alſo other veins from the occipital dura mater, and frequently the maſtoid.

M. M. The *inferior petrous ſinuſes*; two inſerted into theſe foſſæ.

N. N. The *ſuperior petrous ſinuſes*; two aſcend on either ſide near the root of the petrous bone, and are inſerted into the receptacula and jugular foſſæ.

O. O. The veins inſerted into theſe ſinuſes of the cerebellum.

P. P. The *anterior and inferior occipital ſinuſes*.

Q. Q. *Emiſſarium* exeunt with a nerve of the ninth pair. *Emiſſaria* are ſmall veins, &c.

R. R. *Anterior and ſuperior occipital ſinus*; perpetual.

S. S. Its anaſtomoſis with cavernous receptacula and circular ſinus.

T. The opening of the ſuperior petrous into the cavernous.

V. V. *Receptacula, or cavernous ſinuſes*; on the ſide of the ſella equina.

X. X. The *tranſverſe ſinus of the ſella equina*.

Y. Y. The *circular ſinus* of Ridley.

Z. Z. Anterior veins of the cerebrum.

a. a. The principal artery of the dura mater.

b. b. The veins which accompany it.

d. d. The carotid arteries in the receptaculum.

e. e. The little artery in the receptacle to the nerves of the fifth pair.

f. f. Ophthalmic arteries, the origin from the carotid.

g. g. The poſterior angulated clenoid proceſſes.

h. Criſta galli. *i. i.* Frontal ſinuſes.

k. k. Nerves of the fifth pair.

l. The third branch. *m.* The ſecond branch.

n. The firſt branch, *f.* Ophthalmicus.

o. Nerve of the fourth pair.

p. Nervous trunk of the third pair.

q. The diviſion of the fifth pair from the ſixth.

r. Nerve of the ſixth pair.

s. Origin of the intercoſtal nerve.

t. t. The entrance of the *ſeventh* pair into the dura mater.

u. u. The firſt roots of the *eighth* pair.

x. x. *Second* root of the *eighth* pair. *y. y.* *Ninth* nerve.

z. Foramen of the medulla ſpinalis.

In the right eye: after the lacunar of the orbit and a great part of the os malæ is deſtroyed.

1. 1. Ophthalmic artery.

2. 2. An exterior or lachrymal ramus of the ſame, accompanying the nerve.

3. 3. Interior ſurculus extending to the noſe.

4. 4. Branches which go to the ſclerotica, ſome to the uvea.

5. 5. The reliquiæ of the muſcles of the palpebræ and eye.

6. End of the levator palpebræ.

7. Lachrymal gland. 8. Optic nerve.

20, 21, 22, 23, 24, 25, 26, 27, 28, 29. As in the other eye.

In the left eye.

9. Trochlea. 10. Pathetic muſcle.

11. Levator muſcle of the eye.

12. Internal muſcle of the eye.

13. Abductor reſectus.

14. A branch of the third pair to the levatores oculi and palpebra.

15. Reliquus truncus.

16. The outermoſt branch to the obliquus inferior.

17. The middle branch to the rectus inferior.

18. The innermoſt branch to the rectus inferior.

19. A branch to the opthalmic ganglion.

20. A branch of the firſt ramus, the ſuperior branch of the five pair.

21. Exterior ſurculus of the ſame, 22 interior.

23. Exterior branch of the firſt ramus of the fifth pair.

24. Ramuli going to the face through the foramina malæ.

25. Ramula to the lachrymal gland.

26. Inferior branch of the firſt ramus of the fifth pair.

27. A ſurculus of the ſame to the ganglion.

28. A ramulus to the noſtrils.

29. Trunculus creeping anteriorly.

30. Opthalmic ganglion.

31. Ciliar nervuli.

31, 7 & 8. As in the right eye.

PLATE XXV. *Baſis of the brain.*

An anterior view of the baſis of the cerebrum, with the poſterior lobe a little reclined, to ſhew the *fiſſura Sylvii* and the cerebrum ſomewhat drawn back to exhibit the loweſt ſeat of the ventricle.

A A. *The poſterior lobes of the cerebrum.*

B B. *Anterior lobes of the cerebrum.*

C C. *Foſſa Sylvii:* which aſcends to the bivium of the anterior ventricle.

D D. *Cerebellum.*

E. *Commencement of the ſpinal marrow.*

F F. *Corpora pyramidalia,* at the beginning of the medulla oblongata are four eminent bodies of which the interior and tumid collicles diminiſhed backwards in a point are called *corpora pyramidalia.*

G G. *Corpora olivaria*; are two exterior, ſhort, medullary, obtuſe collicles, *or eminences,* mixed with cineritious ſtria, called corpora olivaria from their figure, which may be eaſily diſplaced from their ſeat.

H H. *Pons Varolii:* not only inſcribed with tranſverſe, but alſo with furrows decuſſating in different ways, which the arteries ſeem to cauſe; it is a convex body in the ſuperior ſurface of the medulla oblongata; as the crura of the cerebelli ſubject themſelves to the crura, they then become, as it were, an arch, placed over two ſtreams meeting together which is called *pons,* and attributed to Varolius; others call it the annular protuberance.

Part of the *plexus choroidei:* in the anterior ventricles, plexuſes of veſſels occur, as it were, twiſted into a rope by means of a membrane, which is the propago of the pia mater, and are called plexus choroidei: the figure is triangular, plane, and expanded, like a veil painted with many ſmall arteries. But other more compound plexuſes are continued, in part, convoluted, ſlender, the *right* and *left,* and laſtly, they are joined together. The pia mater convoluted ſpreads in the inferior part of both horns of the lateral ventricle. In that ſeat of the plexus of the cranium propullates into the baſis of the cerebrum, free, placed on the ariſing optic nerve, and covered by the pia mater alone, is continued to the anterior and poſterior end of the thalmorum, and the terminations of the *ſeptem lucidum.*

I I. *Mammillary eminences,* or *eminentiæ quadrigeminæ.*

K K. Part of the *crura cerebri:* the crura cerebri are two medullary eminences which ariſe from the baſis of the cerebrum, and terminate in the pons Varolii.

L L. The *optic nerves* before they unite.

M. Their conjunction.

N N. The optic nerves ſeparated.

O. Part of the pia mater ſubject to the third ventricle.

P. The ſeat of the *infundibulum.*

JI. Anterior part of the *corpus calloſum:* upon cutting away the falx from the *criſta galli,* and drawing down the hemiſphere, a longitudinal white, convex portion preſents itſelf called *corpus calloſum.*

Z. Part of the anterior perpendicular lobe of the cerebrum.

R R. *Olfactory nerves*; ariſe from the *corpora ſtriata,* and they paſs through the cribroſe foramens of the ethmoid bone into the cavity of the noſe, and are diſtributed in numerous branches in the pituitary membrane, for the purpoſe of ſmelling.

S S. Nerves of the *third* pair, *motorum* oculorum: is divided into ſix branches; 1. to the levator muſcle of the palpebra; 2. to the ſuperbus; 3. humilis; 4. bibutorius; 5. to the oblique inferior; 6. to the tunics of the eye, goes out from the loweſt crura cerebri and migrate to the orbit of the eye.

T T. Nerves of the *fourth* pair, or *ſympathetic* nerves; they are the ſmalleſt.

V V. *Nerves of the fifth par diviſum*; this pair is the largeſt of all; divides into 1. ophthalmic; 2. ſuperior maxillary; 3. inferior maxillary, afterwards into the *infra orbitale, temporal, palatine, naſal,* pterygoid, dental, lingual, auricular branches, &c.

X X. Nerves of the *ſixth* pair; the par *adducens.*

Y Y. *Hard* and *ſoft nerves,* or the *ſeventh* acouſtic pair, is compoſed of two nerves whoſe nature is different; the *ſoft* to the organ of hearing; the *hard* makes to the *facial* branches; the ſecond the *auricular.*

Z Z. Nerves of the *eighth,* or par *vagum.*

a a. Nerves of the *ninth,* or *lingual* par.

b b. Anterior roots of the *firſt cervical* nerve: *tenth,* or *cervical* par, found out by Willis, and properly called the *firſt* nerve of the *neck,* has two roots, anterior and poſterior, run into a ganglion, and form an arch with the adjoining ſecond nerve of the cervix, is ſupplied a branch to the intercoſtal nerve, and beneath the occiput goes out of the medulla ſpinali.

c c. *Vertebral* arteries.

d. *Right inferior* arteries of the *cerebelli.*

e. A branch to the inferior ſurface of the cerebellum.

f f. *Antic ſpinal* arteries.

g. Their firſt arch.

h. *Left inferior* arteries of the *cerebellum.*

i i. Branches of the baſilary to the pons Varolii.

k k. Branches of the ſame to the cerebellum.

λ. A branch of the accompanying auditory nerve.

μ. A branch of the *fifth* pair.

ν ν. *Superior* arteries of the *cerebellum.*

π. *Cervical,* or *baſilary* artery.

σ σ. *Deep* arteries of the *cerebrum* ariſing from the cervical.

τ. A branch thence to the plexus choroideus.

υ υ. Branches to the mammillary eminences and fundus of the third ventricle.

φ φ. *Communicating* arteries, or *circle of Willis.*

ψ ψ. Trunks of the *internal carotids.*

ω ω. Their *anterior branches.*

A. Their anaſtomoſis and a branch going out to the third ventricle.

Γ Γ. *Poſterior* Branches of the *carotids.*

Δ. A branch from thence to the plexus choroideus.

PLATE XXVI. *Plexus of the cerebrum.*

The greateſt portion of the anterior and poſterior part of the *cerebrum*, or brain, removed to the poſterior end of the tricorn ventricle, to ſhew the uncovered and perfect velum injected, &c.

A A A. *Medulla cerebri*; of which more hereafter.

B. Part of the cerebellum; in general the lobes of the cerebellum are two, alike and equal, which a falx from the dura membrane divides in two ſhallow parts. Some divide the lobes that are ſomewhat deeper than a furrow into three lobules.

C. *Vermis.*

D. *Corpus calloſum.*

E E. Arteries of the corpus cut.

F. Middle part of the anterior cerebrum confuſedly expreſſed between the corpora ſtriata.

G G. *Corpora ſtriata*; obſcurely drawn, are two long cineritious eminences, elevated in the baſis of the anterior ventricle: they were ſo called from the external appearance exhibiting many longitudinal roundiſh white ſtreaks; they are compoſed externally of a cortical, and internally of the medullary ſubſtance of the brain; together united they concur to the formation of the crura of the cerebrum.

H H. *Thalamus of the optic nerves.*

I I. The *double ſemicircular centre*, or *limbus* of the ſtriated body of *Willis:* white ſtreaks produced from the *anterior commiſſure*, and frequently from the crura of the fornix, but eſpecially from the medulla itſelf, before the thalami of the brain. The anterior end is various, and is continued with one groſs fibre of the fornix of the anterior crus; the other part before that crus, ſubjected to the corpus calloſum of the cerebrum, vaniſhes: another, laſtly, in the poſterior face of the larger *commiſſura* imitating a nerve.

K K. The *poſterior crura* of the *fornix* reflected.

Lower than the corpus calloſum and forwarder, more ſhort and gracile, the reſt parallel, the other a medullary arch, which is called *fornix*.

The middle baſe of it is ſimple, as of the corpus calloſum, it lies upon the interior convex jugum; yet as a curtain from the pia mater it intercedes the medullary collicles, which are called the *thalami opticorum nervorum:* theſe are two poſterior protuberances of the ventricles of the cerebrum, white and terminating in the optic nerves.

The anterior and poſterior terminate in two *crura*.

The anterior go behind the anterior commiſſura of the cerebrum, under the thalami of the optic nerves.

The poſterior *crura* immit themſelves in the hippocampus, but not always.

L L. *Plexus choroides*; within the anterior and lower part of each of the ventricles begins the vaſcular plexus, called *choroides*, included in the *pia mater* only, it lying naked in the reſt of the cavity of the ſkull, formed of a great number of ſmall arteries, together with little veins, originating from a larger trunk; all which veſſels, joined together by the *pia mater*, reſemble a curtain variouſly folded. From this plexus, probably, proceeds the internal warmth of the brain, with its exhalation and abſorption. The choroidal plexuſes become very broad, where the anterior ventricles of the brain begin to deſcend; and thence, contracting gradually downward, they project their extremities to the ends of the anterior ventricles, covered only with the pia mater.

M. Some glands in the dura mater of the tentorium firſt diſcovered by *Haller*.

N N N. Origin of the *velum*, or *plexus*, interpoſed to the *choroides* from the *pia mater* of the poſterior lobe of the cerebrum.

O. The anterior end of that velum in the choroid plexuſes.

P. *Glandula pinealis*; obſcurely appearing, ſubjected to this middle plexus. It is a ſmall conoid eminence of a cineritious colour, lying on the quadrigeminæ eminences: joined with baſis of the medulla of the cerebrum.

Behind the third ventricle and ſuperior of the cerebrum are four eminences, called *nates* and *teſtes*, the pineal gland is lying on theſe covered upwards with a great ſeries of veſſels, which are a continuation of the choroid plexus.

Q. The great veins of *Galen*, the right trunk: *Galen* not only hath ſeen the vein, but the diviſion of it, and he calls it a *great vein*, the diviſion of which fills the *conarium*, the declivity alſo about the conarium he obſerved.

R. The trunk of it is always preſent.

S S. Branches of the ſuperior artery of the *cerebellum* ſpread through that viſcus.

T. *Surculus* of its artery thrown between the plexus of the choroides.

V. The other ſurculus, or ſprig.

X X. Arteries from the profound or deep cerebral to the ſame plexus.

Y Y. Anterior branches of the ſame plexus, they go out in the *corpora ſtriata*, lightly expreſſed in this figure of the cornu of the poſterior ventricle, of uncertain length, ſhort and ſometimes longer they are found; which ſeems to ariſe from the foot of the hippocampus; yet as a *foſſa* ſeparated from the foot of the hippocampus. This oval tubercle is uſed to be, as with one end bent inwardly.

PLATE XXVII. *Arteries of the brain.*

Upon removing the middle plexus, and cutting through the great part of the nudated thalamus and cerebrum, the cerebellum becomes conſpicuous. The weight of the parts containing the anterior ventricle makes them fall down on each ſide, and diſcovers the ventricle very beautifully.

A A. *Cerebrum:* its medulla appears yellow from the blood of the diſſected arteriolæ, but when theſe guttelæ are wiped off it appears white.

The figure of the brain is almoſt an oval.

Superiorly it is divided into two hemiſpheres by the falciforme proceſs.

Inferiorly, from the baſis of the cranium into ſix lobes. The external or cortical ſubſtance is greyiſh; the internal and medullary is white.

B B. *Cerebellum*. The proceſſes from the cerebellum to the medulla ſpinalis are four; in general ſimilar and equally converging medullary columns tend downwards from the crura of the cerebellum into the beginning of the medulla ſpinalis, and touch one another with their utmoſt extremities.

Externally they are moderately conſpicuous from the medulla, unleſs at its end, which ſwelling in the form of a club, reſemble ſome of the corpora olivaria.

On the internal ſide of theſe proceſſes, ſome but obſcure tumors ſometimes appear, ſubrubellous and of a cortical nature.

C. Part of the corpus calloſum; tranſverſe ſtriæ in the corpus calloſum are eaſily diſcovered more evident poſteriorly, but alſo lines of the ſame kind appear in its interior medulla. The corpus calloſum is an oblong medullary prominence, which is conſpicuous by turning back the anterior and middle hemiſpheres of the brain.

D D. Corpora ſtriata externally cineritious. The *corpora ſtriata* are two protuberances of a greyiſh colour anteriorly, under each fore ventricle one is placed.

E E. The *double ſemicirculare centre*, or *tænia ſemicircularis*.

F F. Thalami nervorum opticorum, are two poſterior protuberances of the ventricles of the brain, whitiſh, and finiſhing in the optic nerves: they extend to the ſuperior ventricles of the brain, and

G G. to the third ventricle. Their ſuperior ſurface exteriorly is partly white, partly cineritious. Their convexity tends towards the third ventricle and receive the fornix, then in a direct line, as if reſected, they touch together, and frequently coaleſce.

H H. *Linea alba*; it begins in the poſterior commiſſure, and is inſerted into the double ſemicircular centre.

I. *Poſterior commiſſure of the cerebrum.*

K K. Anterior crura of the fornix cut.

L. *Anterior commiſſure* of the brain: this medullous, robuſt, fibrous funis, ſtretched beyond the anterior termination of the ventricle, which unites the right medulla of the cerebrum with the left before the thalami opticorum nervorum, and before the anterior crura fornicis. It runs into that white fibrous commiſſure, which runs through the thalami and geminum centrum, and crura of the fornix, and gives ſome white filaments.

M. *Teſtes: in the four quadragemina eminences*, are four collicles, or eminences, the inferior, leſs, and more flat pair is called *teſtes*, of which the exterior face is white; they are ſphericles divided.

N. *Nates:* the more ſuperior pair of the collicles, nearer to the conario, called *nates* by the ancients; a velum is placed on theſe collicles.

The *corpora quadragemina*, therefore, are four eminences, or prominences, the anterior are called *nates*, the poſterior *teſtes*.

O. *Glandula pinealis.*

P. *Linea tranſverſa alba* fourth ventricle.

Q. Part of the medulla oblongata, which is the ſide of the fourth ventricle.

R. *Calamus ſcriptorius.*

S. *Lineæ albæ*, from which the nervus mollis ariſes.

T. *Fourth plexus choroideus.*

V V. Part of the crura of the cerebrum. The crura of the cerebrum are two medullary columns, which proceed from the baſis of the cerebrum, or brain, and are terminated in the *pons Varolii.*

X X. Proceſs from the cerebellum to the nates.

Y Y. Arteria profunda of the cerebrum ariſing from the vertebral.

Z Z. Branches to the poſterior proceſſes of the cerebrum reſected.

a. Firſt external branch, thence to the plexus medius and thalami.

β. Second branch to the teſtes and that plexus.

c c. Third branch to that plexus.

d. A branch of the *arteria ſuperior* of the cerebellum going to the nates and teſtes.

e. The left fourth nerve with a ſimple radix.

f. Right fourth nerve ariſing from a double root.

g g. Branches from the ſuperior artery of the cerebellum to that viſcus.

h. Propago, or a ſhoot of the ſuperior artery of the cerebellum deeper than the left.

i. Artery of the nates and teſtes from the ſuperior part of the cerebellum.

k k. Branch from it to the fourth ventricle.

l. A large branch to the nates teſtes, pineal gland, and fourth ventricle.

m. Another branch of it to the nates and teſtes.

n. Anaſtamoſis of the branch *a* & *l*.

x. Branch from the profound trunk of the arteria cerebelli to the nates and teſtes.

a a. Right trunk of an artery of the ſame.

b b. Another branch to the nates and teſtes.

o o. Arteriolæ to the plexus choroideus, ariſing from the inferior artery of the cerebellum.

p. Arteries ariſing from the anterior carotids to the profunda of the cerebrum before the anterior commiſſure.

q. And aſcending behind that commiſſure.

r. Arbuſcula vitæ.

PLATE XXVIII. *Of the medulla ſpinalis, or medullary ſpine.*

Figure I. the *cerebellum* of an infant cut perpendicularly into two parts, the *fourth ventricle* and *medulla ſpinalis*, beheld on its poſterior ſide, together with its *nerves*.

a. *Pineal gland.*

b b. *Corpora quadrigemina.*

c c. The *fourth pair* of nerves of the cerebrum.

dddd. The cerebellum cut through perpendicularly to ſhew the *fourth ventricle*.

eeeeee. The two appearances of a perpendicular ſection of the cerebellum, in which the medullary ſubſtance on either ſide appears diſperſed into rami, which is called *arbor vitæ*.

From this arbor the medullary ſubſtance, as it were collected from branches into a trunk, aſcends, as is evident, to the corpora quadrigemina, and is called *valvula magna cerebri*, ſeu *pedunculus cerebri ſuperior*.

But a part of the medulla cerebelli, particularly extends to the *pons Varolii* and inferior pedunculi, or *poſterior corpora pyramidalia* of the medulla oblongata, which, nevertheleſs, cannot be ſhewn in this view.

f f. *Fourth ventricle*, which is nothing elſe than a kind of furrow imprinted on the poſterior face of the poſterior corpora pyramidalia of the medulla oblongata.

Theſe two bodies are ſeparate from one another in the fourth ventricle by a perpendicular ſulcus, to whoſe ſides they deſcend *perpendiculares eminentiæ duæ*, from which others laterally proceed outwardly, and at length bending to the ſides of the corpora pyramidalia, run anteriorly to the origin of the portion nerve, called *mollis acuſticus*.

Above theſe laſt eminences white medullary, as it were, fibres uſually run, from which, with propriety, ſome anatomiſts deduce the origin of the ſoft portion of the auditory nerves, at leaſt pro parte.

But theſe lines are not always preſent, from which it is doubted whether they are at all eſſential to the ſoft nerve.

h h. *Eighth pair of nerves* of the cerebrum, with the acceſſary nerves, and the recurrent from the medulla ſpinalis.

i. *Ligamentum* piæ matrix.

k. *Appendix* of the medulla ſpinalis intercepted with the cauda equina.

The poſterior appearance of the medulla ſpinalis with thirty pair of ſpinal nerves are evident of themſelves.

And it is alſo evident, that every *ſpinal nerve* ariſes from one double anterior root, and another poſterior, of which every one is compoſed of many nervous fumiculi, and that thoſe roots continually increaſe in length from the firſt pair of cervicals, until they are the longeſt of the laſt ſacral.

Alſo *ganglia* of ſingle ſpinal nerves are perceptible, into which neither anterior or poſterior root run, but the poſterior only paſſes the ganglion, but the anterior is found annexed ei inſalutato through the celluloſo only.

The ſizes of the ſpinal ganglion are evident alſo; the leaſt are in the firſt pair of cervicles, thence they gradually increaſe to the laſt cervical and firſt dorſal, again through the back they diminiſh in ſize, and in the lumbar they increaſe to the firſt ſacral, until the laſt ſacral becomes equally ſmall as the firſt cervical.

The roots of the ſacral nerves are placed without the natural ſituation to ſhew them better.

Figure II. repreſents one of the ſacral nerves with its ganglion, ut clare ob oculos ponatur, quænam ejus radix ganglion tranſeat.

a. *Poſterior radix* of one of the ſacral nerves.

b. *Ganglion*, through which the firſt radix only of the nerve paſſes.

c. *Anterior radix* evidently ſeparated from the ganglion utpote quæ ſola tantum celluloſitate illi adhæſerat.

Figure III. is the *fourth ventricle*, with the principium of the medulla ſpinalis.

a b. a b. Poſterior appearance of the *poſterior corpora pyramidalia*, when the fourth ventricle is taken out.

c c. *Perpendicular ſulcus*, which ſeparates the two former bodies in the fourth ventricle.

d d. *Perpendicular eminences* near the ſulcus.

e e. ——— *tranſverſe*, more or leſs obſervable, they extend to the origin of the portion of the ſoft acuſtic nerve.

f f. *Medullary white ſtriæ*, which alſo extend to the ſoft portion, but not always, and are ſometimes wanting.

g g. Here the Illuſ. Haller indicates the poſterior corpora olivaria, but nothing like them is to be found.

h h. Eighth pair of cerebral nerves.

i i. *Recurrent* ſpinal and acceſſory *nerves* to the eighth pair.

k k. Anterior roots of the firſt pair of cervicals.

l l. Poſterior roots of which communicate with the left recurrent ſpinal.

m m. Poſterior radcies of the ſecond pair.

n n. Poſterior radix of the third pair of cervicals which do not conſiſt of ramous, or branched, but of cylindrical nervous cords.

o o. Vertebral arteries perforating the dura mater, which inveſts the medulla ſpinalis.

PLATE XXIX.

Figure I.

Is a portion of the right nerve of the third pair of the cerebrum.

a b. Part of this nerve, which yet runs down in the cavity of the cranium, and has its involucrum from the pia mater only.

In this part are obſerved interrupted ſtriæ ſufficiently deep, penetrating into the medullary ſubſtance of this nerve, which are formed from the *ſepta* of the pia mater, ſent down into that ſubſtance, and thoſe vaſcular.

Similar *ſtriæ*, originating from the ſame cauſe, are ſeen in the optic nerves; before entering into the orbits they acquire *involucra*, or covering, from the dura mater.

b c. Here more ſtrongly finding an involucrum, it goes into thicker and concatenated funicles.

d. Is a cord from a branch of the ophthalmic nerve running to the third ramus of the third pair of the cerebrum.

Figure II.

That portion of the nerves of the fifth pair of the cerebrum, which is principally contained in the cavity of the cranium, taken away, and the dura mater nudated is ſeen on the ſuperior part.

a. Trunk of the fifth pair of nerves of the cerebrum, conſiſting of many nervous cords of unequal thickneſs, and uncertain number, ſo that 70, 90, and even 100, have been diſcovered.

Theſe cords are multiplied to infinity, and concatenated together, which concatenation, the moſt *ſcientific anatomiſts* have not remarked, but have only repreſented their parallel and united courſe.

b b. *Semilunar ganglion* of Gaſſer, which derived its name from the diſcoverer.

c. Firſt branch of the fifth pair, or the *ophthalmic* deprived of its cellular involucrum.

d. Second branch of the ſame, or *ſuperior maxillary*.

e. Third branch, or *maxillaris inferior*. Upon taking away the cellulous involucrum of theſe three rami, it is evident that each is compoſed of many *funiculi* frequently concatenated together.

Figure III.

Is a nerve of the fifth pair of the cerebrum of the ſame ſide, beheld on its inferior part.

a a. Trunk of the fifth pair.

b b. Its ſemilunar ganglion.

c. Firſt, or ophthalmic ramus.

d. Second branch, or ſuperior maxillary.

e. Third ramus, or *maxillaris inferior*, which gives off three evident rami, of which

f. 1ſt, Sends off the *pterygoid*, *maſſeteric*, *temporal*, *buccinatory* branches, &c.

g. Second *inferior maxillary*, or *alveolaris*, properly ſpeaking.

h. Third *lingual*.

Theſe two laſt, at their commencement, are covered with much celluloſe ſubſtance, ſo as to appear to form one trunk.

i. Is a peculiar faſciculus of nervous funiculi under the trunk of the fifth pair, which ariſing from almoſt a common origin with the fifth pair under the ſemilunar ganglion in a peculiar impreſſion, runs into that ganglion.

k. Portion of the ſixth pair of the cerebrum running through the ſinus cavernoſus, conſiſting of one cord, after its origin or inſertion of the great intercoſtal nerve becoming ſomewhat thicker, and having two ſhort ſtriæ impreſſed on it.

l. Origin of the great intercoſtal nerve, or rather, as it were, double poſterior and anterior inſertion into the nerve of the ſixth pair, conſiſting of many and very thin funicles, which ſuddenly run together, and are again diſſolved.

Figure IV.

A view of another nerve of the fifth pair of the right, viewed on the inferior ſide, together with the neighbouring portion of the nerve of the ſixth pair.

a. Trunk of the nerve of the fifth pair.

b b. Semilunar ganglion, through which, towards the inferior maxillary branch, many funiculi irreſolved paſs.

c. Firſt branch.

d. Second branch.

e. Third branch.

f. Peculiar faſciculus of nervous funicles under the ſemilunar ganglion, going towards the inferior maxilla.

g. Portion of the ſixth pair of the cerebrum.

h. Another origin of the great intercoſtal nerve, or ſympatheticus magnus of Winſlow, different from the former, but which is frequently obſerved. This other nexus of the 6th pair of nerves, with the ophthalmic, is not found by Haller and many others; unleſs cellular and vaſcular; but not at all by any nervous funicles, neither from the ophthalmic to the great intercoſtal, any nervous root is cut off, and unleſs a ſubtile injection of the veſſels with coloured liquor penetrate, the obſervator is eaſily miſtaken.

PLATE XXX.

Figure I.

This repreſents the brachial plexus of the right ſide of a grown-up man, together with the ganglions of the fifth, ſixth, ſeventh, and eighth pair of cervicals, and firſt of the dorſal nerves, from which the brachial plexus is compoſed.

Every plexus of this nerve was carefully excorticated of its firſt cellulous involucrum, to ſhew the *funiculi* of the nerves alone and naked, and their different thickneſs and manner of communication.

5.6.7.8. Nerves of the four laſt pair of cervicals.

1. Nerve of the firſt pair of dorſals.

aaaaa. *Funiculi*, which are made of the anterior roots of theſe nerves ariſing from the medulla ſpinalis, and they paſs the ganglions of the poſterior roots, nor do they unite to the poſterior roots unleſs afterwards theſe go forth out of their ganglions.

bbbbb. *Funiculi*, from the poſterior roots.

ccccc. Ganglia formed from the poſterior roots.

ddddd. Trunks of nerves running together to form the brachial plexus: of which the firſt, *i. e.* five cervicals, conſiſts of one groſs funiculus only; but the others frequently communicate together.

Theſe trunks afterwards are implicated in a ſurpriſing manner, which are better underſtood by a figure than an operoſe deſcription.

e. *Nervus ſupra ſcapularis.*

f. *Axillary*, or *circumflexal nerve.*

g. *External cutaneous*, or *muſculo cutaneous nerve.*

h. *Radial nerve.*

i. *Median nerve* with double root; viz.

k. l. Going out of the brachial plexus.

m. *Cubital nerve.*

n. *Internal cutaneous nerve.*

ooo. Are other leſſer nerves coming out of the brachial plexus indiſcriminately, and without any names.

Figure II.

Is a portion of the *median nerve*, of which funiculi being disjuncted, by the removal of the external *cellular vagina*; yet the mutual inoſculations are exhibited.

They are all delineated in their natural ſize, yet it was neceſſary to prolong ſome funiculi, and eſpecially thoſe which connect the others tranſverſely, in the delineation, to exhibit them clearly at one ſight, yet ſome of the funiculi were obliged to be cut.

aaaa. Are tubercles, to which many others may be ſeen, which ariſe from the medulla of the nervous funiculi, there propelling the vagina, which has leſs reſiſtance.

Figure III.

Are portions of the nerve of the ninth and tenth pair of the cerebrum.

Both were cut away near their exit from the cranium, and are of the right ſide.

a. Nerve of the eighth pair, here conſiſting of many funiculi, of which one goes to form

b. The *nervus paryngeus.*

c. Here the *nervus vagus* ſwells, and conſiſts of fewer funiculi.

d. *Nervus laryngeus*, ariſing from the vagus, and cut off and reclined poſteriorly.

e e. Portion of the nervus vagus deſcending through the neck, conſpicuous after its cellulous involucrum, or coat, is taken off, ſo that the nervous funiculi may be ſeen in it, which are joined together in a multiplied concatenation.

g g. Nerve of the ninth pair, or *lingual* of the cerebrum, conſiſting of one only groſs funicle, yet ramous, at the time it enters the tongue. This nerve coheres with the vagus, as well through the celluloſe, as ſmall nervous funiculi, which are apparently cut.

h. Nerve from the ninth pair, called the *deſcendens*, cut off, having many roots from the ninth pair, of which ſome are the beginning of the lingual nerve, &c.

Figure IV.

Is a ſimilar portion of the tenth nerve and and ninth pair of the cerebrum from the right ſide, but taken from another ſubject, which is here given for the ſake of variety.

a. *Nervus vagus*, conſiſting of three funiculi.

b. *Nervus pharyngeus*, from which one funiculus deſcends, and below unites with the trunk of the eighth pair.

c. *Nervus laryngeus.*

d. Here the nervus vagus conſiſts of one funiculus only, and that large and unequally round.

e. A portion of the nervus vagus deſcending through the neck.

fff. Nerve of the ninth pair of the cerebrum, or *lingual*, making one funicle only, ramous towards the tongue.

g. The nerve called *deſcendens*, from the ninth pair of the cerebrum, of which the ſuperior extremity cut away, was united with the nervus vagus.

If we attentively conſider the nature of the nexus, we ſhall eaſily be perſuaded, that this nerve ought to be called, not leſs *aſcendens*, than *deſcendens*.

PLATE XXXI.

Figure I. repreſents a particle of the optic nerve running in the orbit to the bulb of the eye, beheld through the lens, with the diameter of the objects increaſed 400 times.

a a a a. External vagina of the optic nerve produced from the internal lamina of the dura mater.

b b b b. Interior ſubſtance of the nerve, conſiſting of many funiculi.

c c. Two arteriolæ, which diſſeminate nervous funiculi above and below.

Figure II. is a tranſverſe ſection of the optic nerve, in which ſections of the nervous funiculi appear diſtinct, like *mole hills*.

Figure III. is a tranſverſe ſection of the iſchiadic nerve of a grown-up man, which was firſt dried to cut from it the thin lamella, which was afterwards again moiſtened in water, ſo as nearly to attain its lateral magnitude.

The natural ſize is here ſomewhat increaſed, the better to expreſs the thinner funiculi of nerves.

a a a a. Cellular tela conſtituting the external vagina of the nerve.

b b b b. There are only four tranſverſe ſections of funiculi compoſing the iſchiadic nerve *expreſſed*, the others are evident of themſelves, and in what reſpect they differ in ſize and figure.

Figure IV. is a particle of a lamella of the iſchiadic nerve cut tranſverſely, delineated through the lens, increaſing the object 100 times in diameter.

a a a. Cellular vagina ſurrounding and running between the nervous funiculi.

Figure V. Tranſverſe ſection of a nervous funiculus, beheld through the lens, augmenting the diameter of the object 400 times.

The whole ſection appears to be compoſed of very little globuli unequally divided.

Figure VI. In a lamella of the iſchiadic nerve cut tranſverſely, which, ſuſpended in water, was examined by means of the lens, augmenting the diameter of the object 400 times, one nervous funiculus hath had a pendulous ſituation, which the figure repreſents.

a a a a. Part of the funiculus, as yet ſurrounded with its own vagina.

b b. Medulla of the funiculus expreſſed by the elaſticity of the vagina, beheld laterally.

Figure VII. is a particle of the pulpæ medullæ ſpinalis ſuſpended in water.

Conſiſts merely of very little globules promiſcuouſly, as it ſeems, leaning on each other, and connected together through the moſt ſubtile celluloſe texture, by even macerating in water, ſcarcely to be diſſolved.

Figure VIII. IX. X. XI. repreſent three medullary globules of greater magnitude, varying their figure and ſize according as the lens by which they are examined is either placed nearer or more remote from the object.

Figure XII. repreſents a portion of the iſchiadic nerve of an infant injected through the arteries.

The ſize is moderately increaſed to repreſent the arteriolæ better.

a. Trunk of the iſchiadic nerve, in which the funiculi are clearly ſeen.

b. External popliteal nerve.

c. Internal popliteal nerve.

b. d. c. d. Here the tela celluloſa, more copious, covers the nerves, and more veſſels were filled.

e e e e. Arteriolæ from the neighbouring celluloſe ſubſtance running to the nerve, and there creeping into nervous funiculi.

a. *Figure* XIII. is a portion of a groſs funiculus of the cervical nerve running to form the brachial plexus.

b. A fungus, or monticulus, projections of a medullary ſubſtance, divided into irregular *areolæ* by deep ſtreaks.

Theſe ſtriæ demonſtrate how the membraneous *ſepta* ariſes from the internal ſuperficies of the exterior involucrum of the nervous funicles.

Figure XIV. repreſents the præternatural fungoſity of the medullary ſubſtance of the nervous funiculi, which aroſe from an amputation of the arm of a woman, whoſe hand and fore-arm was badly gangrened, or mortified. The woman lived a long time after the operation; at laſt, when ſhe died of another diſeaſe, it gave an opportunity of examining the truncated member, in which were obſerved in all the extremities of the affected nerves, that their extremities had ſwelled into nodes, from which the radialis nerve being more accurately examined, after the cellular ſtructure was removed, it demonſtrated how from the funicles of the ſame nerve the medullary ſubſtance grew out, as of an unformed white mole, and ſufficiently hard.

a a. Nervous funiculi here forming the radial nerve connected together by a wonderful concatenation.

b. Fungoſity, or excreſcence of the medullary ſubſtance of the funiculi of the radial nerve.

PLATE XXXII.

Intercoſtal, cervical nerve, or the ſympatheticus magnus.

The great importance of an accurate conception of theſe nerves, their connections and diſtributions to various parts, muſt be obvious. Symptoms ariſing from ſympathy of parts in various diſeaſes are clearly demonſtrated, and many affections, formerly obſcure, traced to their true and original cauſes, not by imaginary vain hypotheſes, which have ſo much injured and degraded the art of phyſic; but by demonſtrative facts, that can be reiterated by every induſtrious anatomiſt and phyſiologiſt. On theſe ſubjects much may be ſeen in my treatiſes on nervous diſeaſes, &c.

Name and origin.	*Diviſions.*	*Diſtributions.*
Great ſympathetic nerve; from the ſixth pair of nerves of the brain.	Has three ganglions, branches, filaments, and many *ſurculi*, or ſprigs.	Diſtributed through the neck, thorax, abdomen, &c.
a. *Firſt*, or *great cervical ganglion*; between the proceſſes of the firſt and ſecond vertebræ, and angle of the maxilla inferior.	Receives ramuli from the firſt, ſecond, and third nerve of the cervex, ſometimes from the eighth and ninth pair of the cerebrum.	Sends out the ramus mollis, cardiacus ſupreme, and inferior trunk.
b. *Ramus mollis*; is of reddiſh, ſoſt nature.	Two Ramuli.	Run up to the internal carotid.
	Unus tertius.	Covers the external carotid, and goes to the larynx and pharynx.
c. *Ramus cardiacus ſupremus*, vel *ſuperficialis*.	Receives a branch from the intercoſtal cervical nerve, and many anaſtomoſes.	Runs to the larynx, muſculus ſterno thyroideus and gland, and aorta.
d. *Truncus intercoſtalis cervicalis*; from the ſuperior to the inferior ganglion.	Communicates with the ſecond branch of the fourth pair.	A ramification goes to the thyroid gland; the trunk runs to the inferior ganglion.
e. *Inferior cervical ganglion*; to the fifth vertebra of the neck.	Receives branches from the fifth and ſixth pair of cervicals.	Sends off branches the firſt, ſecond, ſuperficial, and profound.
f. *Firſt internal branch.*	Anaſtomoſes with the ſupreme and recurrent cardiac.	To the cardiac plexus.
g. *Second Ramus.*	Communicates with recurrent of the eighth pair.	Runs to the trachea, pulmonary artery, vena cava.
h. *Ramus ſuperficialis.*	} Are inſerted into the firſt dorſal ganglion above the ſubclavian artery. }	Form the anſæ, or laquei Vieuſſenii.
i. *Ramus profundus.*		
k. *Ganglion dorſale primum*; *magnum*, ſeu *thoracicum ſuperius*; to the firſt vertebra of the back.	Communicates with the ſixth pair, eighth and firſt dorſal.	Sends off an anonymous trunk, rami to the cardiac plexus, aorta, pulmonary, and coronary arteries.
l. *Ganglion parvum*, vel *ſecundum*; between the firſt and ſecond rib.	Is as it were an appendix of the great thoracic ganglion; receives a branch from the firſt dorſal nerve.	Trunk runs to the third ganglion.
m. *Ganglion dorſale tertium*; between the ſecond and third rib.	Receives a ramulus from the ſecond dorſal nerve.	As the above.
n. *Par vagum; eighth.*	Its trunk.	Deſcends in the neck.
o. *Nervus recurrens*; of the par vagum; about the ſubclavian artery.	Has many ramifications and anaſtomoſes.	To the larynx, trachea, arteria pulmonaris, aorta.
p. *Nervus acceſſorius Williſii*; or ſuperior recurrent nerve.	Perforates the ſterno and cleido maſtoid muſcles.	Deſcends to the muſculus cucullaris.
q. *Anterior ramus*, or *branch of the firſt pair of cervical nerves.*	Unites with the ſecond pair.	Sends out a ſmall branch to the great cervical ganglion.
r. ——— *of the ſecond pair.*	Communicates with the former.	Gives two ſmall ramifications to the ganglion.
s. ——— *trunk of the third pair.*	Has many anaſtomoſes with the fourth pair.	Forms the phrenic nerve, and runs to the ſterno cleidohyoid muſcle.
t. ——— *fourth pair.*	Communicates with the third pair.	Gives phrenic, diaphragmatic, profound, and *medial* nerves.
u. ——— *fifth pair.*	} The fifth and ſixth pair are joined together. }	Hence the ſcapula and phrenic nerve, and pectoral muſcle.
v. ——— *ſixth pair.*		
w. ——— *ſeventh pair.*	Communicates with the ſixth pair.	To the ſerratus anticus, &c.
x. ——— *eighth pair.*	} Are joined together, and ſend off ramuli. {	To the pectoral ſerrated muſcles; form the cutaneous, internal, and median nerve.
y. *Firſt pair of dorſal nerves.*		

PLATE XXXIII.

De nervo ſympathico magno, or, *Of the great ſympathetic nerve*.

Repreſents the nerves in the right ſide of the body running to the heart, and their *plexus*, between the *aorta*, *arteria pulmonalis*, et *aſpera arteria*, (quatenus imprimis a nervis dextris conficitur.) The proper and relative ſituation of many nerves is changed, otherwiſe they would not be clearly exhibited, or in any way delineated. Thus, the *ſubclavian* artery is cut off; the *common*, *external*, and *internal carotid*, with other ſanguiferous veſſels; alſo may be ſeen the *aorta* drawn on the left ſide. *The appearance of the head*, with the *larynx*, *pharynx*, *aſperia arteria*, and *æſophagus:* which being deprived of the poſterior cellular ſtructure, by which the adjacent parts adhere, by ſo much they ſecede from the bodies of the left vertebræ. But the *par vagum*, with the *recurrent nerve*, and other nerves coming forth from that, as likewiſe the vena *cava ſuperior* of the right ſide are removed.

A. Part of the right external ear.
B. *Mammillary* proceſs covered by the *ſterno* and *cleido-maſtoid muſcles*.
C. D. *Sterno* and *cleido-maſtoid muſcle:* C. their inſertion into the *os occipitis* and *temporal bones:* D. ſeparated from the *ſternum* and *clavicula*, and reclined upwards and poſteriorly.
E. The *ſplenic* muſcle of the *head*, by which it is inſerted into the os *occipitis*.
F. Muſculus *biventer cervicis*, and eſpecially its extremity inſerted into the os *occipitis:* the whole cucullaris muſcle is taken away.
G H I. Muſculus *biventer maxillæ inferioris:* G. its firſt venter: H. Tendo medius: and I. ſecond venter inſerted in the *maxilla inferior*.
K. Muſculus *ſtylohyoideus*, annexed to the baſis of the *hyoid* bone, which in this body was found divided into two plain portions, between which two bellies the tendon was ſeated.
L. Glandula *maxillaris*; which in part covers the biventer muſcle of the maxilla inferior, or rather is marked with a longitudinal ſulcus in which this muſcle is ſituated.
M. Glandula *parotis*.
N N. Part of the *maxilla inferior* denudated.
O O O. An inciſion of the common integuments.
P P. Muſculus *ſtylo pharyngeus*, in part conſpicuous.
Q. *Superior conſtrictor* muſcle of the *pharynx*.
R. *Middle conſtrictor*.
S S. *Inferior conſtrictor*.
T. Muſculus *ſternothyroideus*.
V V. ——— *ſternohyoideus*.
W. Another venter of the *coracoid* muſcle (inſerted in the inferior and anterior part of the *baſis* of the *hyoid* bone, with a part of the middle tendon.
X. Muſculus *hyothyroideus*.
Y Y. The right and left *mylohyoid* muſcles inſerted in the *baſe* of the *hyoid* bone.
Z. Muſculus *ceratogloſſus*, ariſing from a horn of the os hyoidis.
Γ. Part of the *thyroid* gland.
Δ Δ. *Œſophagus*.
Θ Θ. *Aſpera arteria*; dividing *on the lower part* into two branches, which are uſually called *bronchia*.
Δ. Ξ. Π. Σ. Φ. Ψ. Bodies of the *vertebræ of the neck*; Δ. of the ſecond; Ξ. third; Π. fourth; Σ. fifth; Φ. ſixth; Ψ. ſeventh for the head.
Ω. a. b. Bodies of the *dorſal vertebræ:* Ω. of the firſt; a. of the ſecond; b. three from the neck. The bodies of the vertebræ of the neck and back, upon removing the ſanguiferous veſſels, and reclining the *pharynx* and *larynx* on the right, here come in ſight.
c. The muſcular *longus of the neck* by chance repreſented.
d. ———— *rectus capitis internus major*.
e e. ———— *ſcalenus prior*, divided into three caudæ.
f f. ———— *ſcalenus medius*.
g g. ———— *lateralis*, with its ſuperior cauda running to the *tranſverſe* proceſs of the third vertebræ; in this body it is thicker than uſual.
h. Muſculus *levator ſcapulæ*.
i. Arteria *axillaris*.
k. Arteria *thoracica externa* ſ. *ſecunda*.
l m n. l m n. Three ſuperior *ribs*; l l. firſt; m m. ſecond; n n. third.
o o. *External intercoſtal* muſcles.
p p. *Internal*.
q q. r r. s. *Right lung:* q q. its convex ſ. external ſurface; r r. internal plane ſurface, running towards the *mediaſtinum* reclined on the right hand; s. an inciſſure dividing the ſuperior and middle lobe.
t t. Convex ſ. external ſurface of the *left lung*. The whole of this lung appears compreſſed from the *arch* of the *aorta* being drawn on the left.
u. v. Two carnous parts of the diaphragm, ſ. *ſuperiore:* u. right; v. left; conſpicuous on its ſuperior ſ. convex ſurface.
w w w. x. *Pericardium* in part left; w w w. its lateral parts; x. inferior part connected with the tendinous centre of the *diaphragm*.
y. *Vena cava ſuperior*, moved out of its ſituation on the right, whence the vena *azygos* appears a little retracted.
z. *Vena cava inferior:* ſ. *aſcendens*, which expand to conſtitute the right ſinus.
a. Vena *azygos*.

It would be an uſeleſs repetition to purſue the different parts of this plate farther; whoever wiſhes to porceed to a minute inveſtigation of the nervous ſyſtem, which is principally intended for *phyſicians* only, will eaſily comprehend the whole by referring to the Latin references.

PLATE XXXIV.

Figura I.

Alſo delineates the nerves running to the heart from the right ſide of the human body, and the branches laying over the arteria *aorta*. Thus, this is repreſented with the *ſubclavian*, *common*, and *internal carotid* arteries, in as natural a ſituation as could be preſerved: the more conſiderable nerves running behind theſe veſſels are only marked by points. The whole neck, for the ſame reaſon, is extended as in the firſt plate, viz. by putting under it a wooden cylinder. But of thoſe parts which the preceding plate repreſents, the following are cut away: *external ear*, *ſterno*, and *cleido-maſtoideus* muſculus, *biventer maxillæ inferior*, *ſtylohyoideus* with the *mylohyoideus* muſcle, and alſo the *maxillary* gland and proceſſus *ſtylohyoideus*.

A. Muſculus *biventer cervicis*, whoſe tendinous extremity, affixed to the os *occipitis* with a certain part of the fleſh is perceived.
B. Muſculus *ſplenius capitis*, and its tendinous extremity, inſerted in the *occipital* bone, *maxillary* bone, and proceſſui cognomini.
C. Muſculus *levator ſcapulæ*.
D. ——— *ſcalenus lateralis*.
E E E. ——— ——— *medius*.
F. ——— ——— *prior*.
G. ——— *rectus capitis internus major*.
H. ——— *ſtyloglossus*.
I. ——— *ſtylopharyngeus*.
K. ——— *conſtrictor pharynges medius*.
L. ——— ——— ——— *inferior*.
M. ——— *hyothyroideus*.
N. Superior venter of the muſculus *coracohyoideus*.
O. Muſculus *ſternohyoideus*.
P. ——— *ſternothyroideus*.
Q. ——— *ceratogloſſus*, proceeding from the *cornu* of the *hyoid* bone to the tongue.
R. ——— *baſiogloſſus*, ariſing, ſome part of it from the horn of the os hyoidis, but the greater part from its baſis.
S. ——— *geniohyoideus*.
T. ——— *geniogloſſus*.
V. ——— *longus colli*, viſible in part.
W. Part of the *ſuperior conſtrictor* muſcle of the *pharynx*.
X. Muſculus *ſterno-maſtoideus* of the left ſide.
Γ. *Occipital* bone.
Δ. *Mammillary* proceſs of the *temporal* bone.
Θ. *Meatus auditorius externus*, as yet covered with ſkin on its interior ſurface. At the ſame time a particle of the cartilage adheres to it.
Λ. *Styloid* proceſs is removed with a part of the *temporal bone*, from which it was taken.
Ξ. *Capitulum maxillæ inferioris*, ſ. *proceſſus condyloideus*. The ligament covering it is diſſected.
Π. *Angle* of the maxilla inferior.
Σ. *Sublingual gland*, in a part prominent.
Φ. *Baſis of the hyoid bone.*
Ψ. A ſituation where the *cornu* of the *hyoid bone* lies concealed.
Ω. *Thyroid* cartilage.
a. *Common trunk of the carotid* arteries.
b. Its *cerebral* ramus, called *internal carotid*.
c. Its flexure, called *flexure Cowperiana*, always preſent extra the *canal* of the *carotid*; in the body it verges ſo much out as to cover, in a part, the *internal jugular vein*.
d. *External* ramus of the *carotid*, called *externa carotis*.

But it muſt be obſerved, that the *common carotid* artery Lit. a. *internal* Lit. b. and *external* Lit. c. in this figure are removed a little forward. For in its natural ſituation the carotis *communis* and *interna* lay near to that very long ganglion, Num. 168, 169, 170, even ſomewhat cover it.

g. Common trunk of the *lingual* and *labial* artery.
h. *Lingual artery*, running under the muſculus *ceratogloſſus*.
i. *Labial artery of Haller*, the rami of which are omitted; it is called by others *angularis* ſ. *facialis*.
k. Trunk of the *external carotid* artery riſing towards the *temples*.
l. *Occipital* artery, which aſcends obliquely above the *internal jugular* vein.
m. The artery *auricularis poſterior* is cut off in this body more remarkable than uſual.
n. Artery running to the *maſſeter* muſcle.
o. ——— ——— *parotid* gland.
p. ——— ——— *maxillaris interna*.
q. ——— ——— *temporalis*.
r. ——— ——— *ſubclavia*.
s. ——— ——— *axillaris*.
t. ——— ——— *cervicalis profunda*.
u. ——— ——— *thyroidea inferior*.
v. *Tranſverſe ſcapular* ramus of the *thyroid* artery.
w. Arteria *vertebralis*.
x. ——— *mammaria interna*.
z. ——— *laryngea* (otherwiſe, it uſually proceeds from the *ſuperior thyroid*.)

Figure II.

A delineation of the *great cervical ganglion*, the arteries being removed, &c.
a. Exterior ramus of the *intercoſtal* nerve.
b. Ramus interior.
d e f. Part of the ſuperior *cervical* ganglion, &c.

Figure III.

A. B. C. &c. See the Latin edition.
13. The *ſuperior cervical ganglion*.
15. The *inferior cervical ganglion*.

All the minute inveſtigations may be eaſily purſued in the Latin references, &c.

PLATE XXXV.

Figure I.

The body being placed in the ſame poſition as in the explication of Plate XXXIII. the whole of the *auris externa*, with the *cartilagineous meatus auditorius*, alſo the *maſtoid* and *ſtyliforme* proceſſes, with the annexed muſcles, and ſome other parts, are removed, the better to ſhew the conformation of the ſuperior nerves.

a. The bony *meatus auditorius*.
b. Radix of the *maſtoid* proceſs cut off.
c. *Condyloid* proceſs of the *inferior maxilla*.
d. *Angle of the inferior maxilla*.
e. Tranſverſe proceſs of the firſt vertebra ſ. *atlas*.
f. Inferior lateral part of the body of the *atlas*, proceſſus of the oblique deſcendens, which a little prominates.
g. Muſc. *rectus lateralis of the head*.
h. Superior part of the muſc. *levator ſcapulæ*.
i. Part of the muſc. *obliq. inferior*.
k k. Muſculus *ſcalenus prior*.
l. Firſt rib to which the muſcle juſt mentioned is annexed.
m m. Muſc. rectus internus major of the head.
n. ——— *longus of the neck*.
o. Arteria *innominata*.
p. ——— *ſubclavia dextra*.
q. ——— *thyroidea inferior*.
r. *Tranſverſe ſcapularis* ramus of the ſame.
s. Arteria *vertebralis*.
t. ——— *cervicalis profunda*.
u u. *Common trunk of the carotids*.
1. Superior radices of the *intercoſtal* nerve running into one nerve in the *canalis caroticus*, which here emerges from the *canal* already mentioned.
2. Ramus from the *firſt pair of cervical* nerves inſerted in this nerve.
3. Another ramulus running from the anterior ramus of the *firſt pair of cervicals* to this nerve.
4. 5. Ganglion *cervicale ſuperius*, conſiſting of two tubera and a thinner intermediate portion in this caſe.
6. Ramus *gangliformis*, ſtretching out from the *third pair of cervicals* to the *firſt cervical* ganglion, and forming as it were the cauda, or tail, of the ganglion.
7. Ramulus which deſcends from the preceding ramus to the *fourth pair*, or *vice verſa*, it aſcends from the *fourth*.
8. 9. Two ramuli running from the conjunction of the anterior ramus of the *firſt pair* with the anterior ramus of the *ſecond pair* to the *ſuperior* ganglion.
10. Ramulus dilabens, from the anterior ramus of the *ſecond pair* to the ganglion already mentioned.
11. Ramus from the *par vagum*, inſerted in that ganglion.
12. Firſt ramus *mollis*, running from the ganglion.
13. Superior ramulus of the ſame, which uniting with a ramulus of the nervous *gloſſopharyngeus*, Num. 35.
13. Goes to the *conſtrictor medius of the pharynx* and *ſtylopharyngeus*.
14. Inferior ramulus of nerve Num. 12, inſerted in the *conſtrictor medius of the pharynx*.
15. *Second mollis* nervus of the *ſuperior cervical* ganglion.
16. Surculus of this running to the third nervus *mollis*.
17. Conjunction of ramus, Num. 15, with ſurculus Num. 33, of the nervus *gloſſopharyngeus*.
18. Surculus of the ſecond nervus *mollis*, Num. 15, to be united with a ſurculus of the nervus *laryngeus*.
19. Another ſurculus of ramus Num. 15, which is implanted in the *inferior conſtrictor* muſcle of the *pharynx*.
20. *Third* and more remarkable nervus *mollis* of the ſuperior ganglion.
21. Firſt ramulus of the ſame, which gives
22. A ſurculus to the *lingual* artery, and
23. Another ſurculus running to the ramus Num. 39 of the nervus *laryngeus*.
24. 24. Ramulus from the third nerv. *mollis*, Num. 20, which deſcends behind the *trunk* of the *carotids*, then curving round the ſame appears in the exterior ſurface, *vid.* Num. 246.
25. In this part the third nerv. mollis is inflected around the inferior part of the *thyroid artery* exteriorly.
26. Ramulus accompanying the *thyroid* artery.
27. Ramulus of the third nervus *mollis*, Num. 20, aſcending exteriorly above the *external carotis*.
28. Its ramulus, ſaluting the *labial* artery.
29. Ramulus which aſcends further to the *internal* and *temporal maxillary* artery.
30. Firſt ramus of the *par vagum*, called the *gloſſopharyngeus*, drawn a little upwards from the other nerves.
31. Inſertion of the *portio dura* of ramulus Num. 47 in this nerve.
32. Ramulus of the *gloſſopharyngeus*, deſcending to the nervi *molles*.
33. Poſterior ſurculus of the ſame acceding near the ſecond nervus *mollis*.
34. Anterior ſurculus going to the ramulus of the nervus *laryngeus*, Num. 39.
35. Another ramulus of the nervus *gloſſopharyngeus*, to be united with a ſurculus of the firſt nervus *mollis*, Num. 13.
36. 37. The remaining part of the nervus *gloſſopharyngeus* exhibiting two *lingual* nerves.
38. Nervus *laryngeus* of the *eighth pair*.
39. Ramnlus of the ſame running to the nervi *molles*.
40. Anterior ſurculus of it, which uniting with ramus Num. 18 of the ſecond nervi *mollis*, goes to the *conſtrictor inferius of the pharynx*.
41. Poſterior ſurculus of the ſame, which ſends off
42. 43. 44. Three ſurculi departing to the *conſtrictor infer. of the pharynx*.

Figure II.

Repreſents principally the *nervus* mollis from another ſubject.

Figure III.

Is taken from an infant eight days old.

Figure IV.

The body of an adult in the ſame manner as figure of this plate, &c.

PLATE XXXVI.

Of the nerves of the thorax and abdomen.

FIGURE I.

This figure repreſents not only the intercoſtal nerve from the ſixth rib to the third vertebra of the os ſacrum in the right ſide, but alſo the ſixth inferior coſtal, lumbal, and ſacral nerves. The os ilii, iſchium, and pubis, are removed, that their parts ſituated in the cavity of the pelvis, and the nerves migrating to them, may be conſpicuous.

6. 7. 8. 9. 10. 11. 12. Six inferior ribs, of which each is marked by *its number*.
VI. VII. VIII. IX. X. XI. XII. Six inferior dorſal vertebræ.
I. II. III. IV. V. Spurious vertebræ of the os ſacrum.
I. Firſt ſpurious vertebra of the os ſacrum.
A. Lateral part of the firſt ſpurious and ſecond vertebra of the os ſacrum cut with a ſaw almoſt to the foramen from which the firſt and ſecond ſacral nerve go out.
B. Cartilage of the os pubis of the left ſide S.
C. Tranſverſe proceſs of the firſt vertebra of the loins.
D. Tranſverſe proceſs of the ſecond lumbar vertebra.
E. Tranſverſe proceſs of the third lumbar vertebra.
F. Tranſverſe proceſs of the fourth lumbar vertebra.
G. Tranſverſe proceſs of the fifth lumbar vertebra.
a. Inferior lobe of the right lung.
b b b. The *remaining* portion of the pleura, forming the poſterior mediaſtinum.
c c c c. Ductus thoracicus *pulled* a little from its natural ſituation between the vena azygos and aorta.
d d. Pericardium recluding the heart.
f. Inferior vena cava, entering the cavity of the thorax, through the right four-ſided foramen of the diaphragm.
g g g. Diaphragm ſeparated from the ribs.
h. External crus of the diaphragm.
i. Middle crus of the diaphragm.
k. Internal crus of the diaphragm.
l l. Right kidney ſo removed from its natural ſituation as to be drawn upwards and towards the left ſide.
m m m. Ureter.
n n n. Veſica urinaria.
o o o. Inteſtinum rectum.
Δ Δ. Inferior portion of the inteſtinum colon, which terminates its flexure of the ſame, called Romana.
p p. Levator inteſtini recti,
* * Muſc. ſpinoſo-dexter and ſpinoſo-coccygeus.
q q. Ligamentum ſpinoſo-ſacrum.
r r. Uterus drawn up and to the left.
s s s. Vagina.
t t t. Ligamentum rotundum of the uterus.
v v v. Tube Fallopii.
w. Ovarium.
x x. Corpus cavernoſum of the clytoris with the levator muſcle of the clytoris adhering to it.
H H H H. Skin of the nates and perinæum.
I I. Skin covering the internal ſurface of the femora and the external pudenda.
K. Skin of the mons veneris.
L L. Labia pudendorum majora.
M M M. Vena cava placed without its natural ſituation, viz. upwards and on the left.
N. The right iliac vein cut off.
O. Left illiac vein.
P. Common trunk of the right renal vein Q. and of the right ſpermatic vein R.
S S S S. Aorta.
T T T T T T. Arteriæ intercoſtales aorticæ; the laſt of theſe runs under the eleventh rib.
V V V V V. Lumbal arteries. Six in this body are lumbal arteries ariſing from the aorta, but the laſt is omitted.
X X. Arteria renalis.
α α. Internal ſuperior ſpermatic artery between two renal arteries, viz. right and left, ariſing from the aorta.
β β. Arteria ſpermatica, interna, inferior.
Y. Right iliac artery.
Z. Right crural artery.

FIGURE II.

This ſhews the narrow vinculum of the great ſympathetic nerve of the right ſide, with the ſympathetic of the left ſide, and the true termination of both. The ſame figures are retained, &c. as in the firſt.

In this elegant, well-executed plate, the lateral view of all the parts of the pelvis and loins, &c. are accurately exhibited. The ſituation of the urine bladder, uterus, and rectum, their appendages, the kidney, part of the lungs, diaphragm, &c. with veſſels, nerves, and their ganglions, plexuſes and ramifications, connections, &c. become grand objects for the contemplation of all thoſe induſtrious ſtudents, who wiſh to lay a ſolid foundation for acquiring profound knowledge: the more they ſtudy, the more they will be delighted with the wonderful ſtructure of the *nerves*, and they will not, after proper application, ſay with the *ignorant*, that phyſicians know *nothing* of the *nervous ſyſtem*. What application in the practice of phyſic may be made of theſe purſuits, may be ſeen in my treatiſes on nervous diſeaſes, &c.

PLATE XXXVII.

Explains the origin and nature of the ganglion called ſemilunar; or rather of the cœliac ganglions of the right ſide; exhibits the renal and ſpermatic ganglion of the right ſide, and anaſtomoſis of the ſame with the ganglia of the left ſide, the origin of the ſuperior meſenteric plexus and the inferior meſenteric plexus, and right hypogaſtric nerves.

A A A A. Inferior facies of the right lobe of the hepar reclined.
B. Vena cava.
C C. Rami of the vena cava entering the hepar.
D D. Part of the coſtal diaphragm.
E E E. Right ala of the diaphragm.
F F. Part of the lumbar diaphragm.
G. External crus of the diaphragm.
H. Middle crus of the diaphragm.
I. Internal crus of the diaphragm.
K K. Right phrenic artery.
L L. Right ramus of the right phrenic artery.
M M. Left ramus of the right phrenic artery.
N. Common trunk of the ſuperior left coronary artery of the ventricle, and of the left hepatic artery.
O. Right hepatic artery.
P. Lienal artery.
Q. Superior meſenteric artery.
R R. Right renal artery cut off.
α. Artery of the ſuccenturiate ren ariſing from the right renal artery.
S S. Aorta.
I. Firſt vertebra of the loins.
II. Second.
III. Third.
IV. Fourth.
V. Fifth.
I. Firſt ſpurious vertebra of the os ſacrum.
a. Lateral part of the firſt and ſecond ſpurious vertebræ of the os ſacrum almoſt to the foramina, from which the firſt and ſecond ſacral ramus go out, ſawed off.
b. Right ſuperior ſpermatic artery.
c. Right inferior.
π. Left ſpermatic artery.
T. Trunk of the inferior meſenteric artery.
V V V. Lumbar arteries, anſwering to their vertebræ.
X. Ramus aſcendens of the infer. meſent. artery.
Y. Ramus deſcendens of the ſame.
d d d d d d. Rami of the deſcend. infer. meſent. artery, rami migrating to the inteſtinum colon.
Z Z. Right iliac artery.
f. Left.
g. Left hypogaſtric artery.
h. Left crural artery.
i. Right hypogaſtric artery.
k. Right crural artery.
m m m. Portion of the inteſtinum colon forming the flexure Romana, ſo called.
29. Anterior ramus of the fifth pair of lumbar nerves.
62. Trunk of the ſymp. nerve, or nerv. anaſt. of the ganglion, with the 11th thoracic ganglion.
63. Firſt radix.
64. Second rad. which *ariſes* from the anterior ramus of nerve 24. Plate XXXVI. Fig. I. and run into the firſt lumbar ganglion.
65. Third rad. terminated in the trunk of the nerv. ſymp. or into nerv. anaſtomoſis between the firſt and ſecond lumbar ganglion.
69. Exterior ſurculus of nerve 66. Plate XXXVI. Fig. I. inſerted into the great ſymp. nerve, or nerv. anaſtom. between the firſt and ſecond lumbar ganglion.
70. Trunk of the nerv. ſymp. magn. or nerv. anaſtom. between the firſt 61. and ſecond ganglion 78. Plate XXXVI. Fig. I.
78. Second lumbar ganglion.
79. Firſt radix ſent by the anterior ramus of the firſt pair of lumbar nerves, Plate XXV. Fig. I. to the ſecond lumbar ganglion.
80. Second radix which the ſecond lumbar ganglion receives from the anterior ramus of the firſt pair of lumbar nerves.
81. 81. Radix from nervus anaſtom. between the firſt lumbar nerve and the ganglion ſingular of the ſecond lumbar nerve 104. Plate XXXVI. Fig. I. which, at its origin, is bicrural, then ſimple, and is inoſculated in the trunk of the nerv. ſym. mag.
97. 97. Surculus nervoſus ariſing from anaſtomoſis between the firſt lumbar nerve 25. Plate XXXVI. Fig. I. and ganglion ſingulare 104. Plate XXXVI. Fig. I. of the anterior ram. of the ſecond lumbar nerve 26. Plate XXXVI. Fig. I. which is finiſhed in the ligaments of the vertebræ.
98. Third lumbar ganglion.

PLATE XXXVIII.

This Plate repreſents the great ſympathetic nerves and par octavum, or nervus vagus in the left ſide of the body. The courſe of the intercoſtal nerve begins beneath the ſixth rib, and its further progreſs in the firſt ſpurious vertebra of the os ſacrum is cut off.

1. Seventh rib.
2. Eighth.
3. Ninth.
4. Tenth.
5. Eleventh.
6. Twelfth.
7. Ninth vertebra of the back.
8. Tenth.
9. Eleventh.
10. Twelfth.
II. Second vertebra of the loins.
III. Third.
IV. Fourth.
V. Fifth.
I. Firſt ſpurious vertebra of the os ſacrum.
A A A A. Left lung.
B B B. Pericardium and heart incloſed in it.
C C C. Oeſophagus.
D. Cardia.
E E E E. Ventriculus, or ſtomach.
F F F. Pancreas.
G G G. Lien.
H H H. Left kidney.
I. Pelvis renalis.
K. Ureter cut off.
L L. Left bronchus.
M M M M. Part of the lumbar diaphragm.
N. Crus, or left external appendix of the diaphragm.
O. Crus, or internal appendix of the diaphragm.
P P. &c. The muſc. pſoas major *cut* at the end, to ſhew the exits of the lumbar nerves, and the origin of the lumbar ganglia, the better.
Δ Δ Δ. Muſculus pſoas minor.
Q Q Q. Aorta.
R. Left ſubclavian artery.
S. Left carotid artery.
T T. Ductus arterioſus of Botalli.
V. Left ſuperior bronchial artery.
X. Arteria œſophagea, from which *runs*
Y. The left inferior bronchial artery, which is *cut* off.
Z Z. Left bronchial artery cut off at its origin from artery Y. running down to the left bronchus.

a. a. Anaſtomoſis between the left ſuperior and left inferior bronchial artery.
b b b. Left pulmonary artery.
c c. Sac of the pulmonary veins.
d d d d d. Pulmonary veins.
f. Trunk of the cœliac artery.
g g. Left phrenic artery.
h. Truncus communis of the left hepatic artery, and of the left ſuperior coronary of the ventricle.
k. Left hepatic artery.
l. Right hepatic artery.
m m m. Arteria lienalis.
n n. Arteriæ pancreaticæ.
o o o. Arteria gaſtro-epiploica, or left inferior coronary artery.
p p. Pancreatic arteries, which arteria o o o. ſpargit.
q q q q. &c. Rami lienales.
r r r r. Arteria breves of the ſtomach.
s. Trunk of the ſuperior meſenteric artery.
v v v. Left renal artery.
w. Left ſpermatic artery.
x. Inferior meſenteric artery.
y. Right iliac artery.
z. Left iliac artery.
11. Fourth aortic intercoſtal artery.
12. Fifth.
13. Sixth.
14. Seventh.
15. Eighth.
16. Ninth.
17. Third lumbar artery.
18. Fourth.
19. Fifth.
20. Sixth left intercoſtal nerve.
21. Seventh.
22. Eighth.
23. Ninth.
33. Tenth.
34. Eleventh.
35. Twelfth.
36. Firſt left lumbar nerve.
37. Second.
38. Third.
39. Fourth.
40. Fifth.
41. Sixth left thoracic ganglion of the great ſympathetic nerve, or nervus intercoſtalis.

PLATE XXXIX.

Plate XXXIX. repreſents the nerves of the liver and ſtomach compoſed by the conflux of the right and left cœliac ganglion, which could not be ſo well expreſſed in Plate XXXVI. XXXVII. and XXXVIII.

A A A. Inferior ſurface of the right lobe of the liver.
B B B. Inferior ſurface of the left lobe of the liver, drawn upwards and a little back.
C C C. Lobus quadratus of the liver.
D. Poſterior lobe, or *Spigelius hepatis*.
E E. Veſica fellea, or gall-bladder.
F. Ductus cyſticus, or cyſtic duct.
G. Ductus hepaticus, or hepatic duct.
H. Ductus choledocus.
I I. Ligamentum ſic dictum rotundum hepatis.
K K. Ligamentum latum hepatis.
L L. Pancreas.
M M. Ventricle, or ſtomach.
N N. Fundus ventriculi, or fundus of the ſtomach.
O. Pylorus.
P. Cardia.
Q Q. Inteſtinum duodenum.
R R R R. Portion of the omentum majus.
S S. Portion of the omentum minus.
T T T. Part of the lumbar diaphragm.
V. Left ſuperior orifice of the diaphragm, or ſphincter of the œſophagus.
X. Vena cava.
Y Y. Trunk of the vena portarum.
Z. Right hepatic artery, which almoſt always ariſes from the aorta with the common trunk with the left hepatic artery.
a a a. Arteria cyſtica.
b b. Right ſuperior coronary artery.
c c c c. Right inferior coronary artery, or arteria gaſtro-epiploica dextra.
d. Trunk of the left arteria gaſtro-epiploica cut off.
f. Truncus communis of the left hepatic and left ſuperior coronary artery.
g g. Left hepatic artery.
h h. Cardiac artery, ariſing from the left hepatic.
i. Ramus ſtomachicus, which the left hepatic artery emits.
k. Arter. coronar. ſiniſtr. ſuperior.
l l l. Rami of the left coronary artery which tend to the poſterior planum of the ventricle.
m m m m. Evaneſcent rami in the anterior facies of the ventricle.
o o. Arteria lienalis.
p. Arteria pancreatica.
q. Arteria omentalis.
247. Fourth and left cœliac ganglion.
248. Fifth left cœliac ganglion.
249. Sixth.
250. Seventh.
252. Ninth.
253. Tenth.
26. Third radix of the gang. phrenico hepatici. Plate XXXVII. Plate XXXVIII.
δ. Trunculus communis 24 and 25 of the radices of the gangl. phrenic. hepaticum. Plate XXXVII. Plate XXXVIII.
27. Gangl. phrenic. hepatic. which
β. γ. Secedes into two ſurculi. Plate XXXVII. Plate XXXVIII.
30. 30. Ramus ariſing from rad. 24, which afterwards ſends
31. A ſurculus to the nervous plexus comprehending the truncus communis of the coronary and left hepatic artery like a net, and joins itſelf with nerve 28, Plate XXXVIII. into
260. 260. One ramus, which is divided into two rami, viz. the left ſuprarenal and right hepatic ramus.
261. 261. 261. Ramus ſuprarenalis running to the left before the cardia, ſo that at length it is terminated in the left ſuprarenal gland. Plate XXXVIII.
262. 263. 264. Second right hepatic ramus carried to the left ſide of the liver with the left hepatic artery.
32. Second principal ramus of the gangl. phrenic. hepatic. Plate XXXVII.

The nerves of the liver are beſt divided into the right and left; but the nerves of the ſtomach are not ſo, for this receives its principal nerves in the left ſide from the left cœliac nerve and the eighth pair.

PLATE XL. *Of the thorax and abdomen.*

Name and ſituation.	*Structure, connection, &c.*	*Uſe.*
1. The *larynx*, is a cartilaginous capſa ſituated behind the tongue.	It conſiſts of five cartilages and various muſcles.	Is the organ of ſpeech, and ſerves for reſpiration.
2. The *internal jugular vein*, is a branch of the ſuperior vena cava.	The internal jugular veins begin from the foramina lacera of the cranium.	They receive the blood from the ſinuſes of the cerebrum, cerebellum, &c.
3. The *ſubclavian vein*, ſituated under the clavicles.	They terminate in the ſuperior vena cava.	Convey the blood into the vena cava aſcendens.
4. The *vena cava deſcendens*, is divided into ſuperior and inferior.	Receives the ſubclavian, external and internal jugular veins, and the vena azygos.	Sends the blood into the left ventricle of the heart.
5. The *right*, or *anterior auricle of the heart*, a muſcular ſac, opening into the right ventricle.	The ſtructure is membranous, there are two valves, called mitral valves, annexed to it.	By this auricle the blood enters the right ventricle of the heart.
6. The *right ventricle of the heart*, is the anterior cavity of the heart.	The heart is divided into right and left ventricle by a carneous ſubſtance, called the *ſeptum*.	The right ventricle receives the blood carried through the vena cava, and ſends it into the lungs.
7. A portion of the *left ventricle*, in the poſterior part of the heart.	This ventricle is ſtronger than the right.	From it the blood is driven through the aorta and arteries all over the body.
8. The *aorta deſcendens*, makes an arch from the right ventricle of the heart, towards the vertebræ of the back, deſcends into the abdomen, and is divided into the iliacs.	The arch of the aorta gives off: 1. The arteria innominata. 2. The left carotid. 3. The left ſubclavian.	1. Gives off the ſubclavian and right carotid. 2. From thence the external and internal carotids. 3. The ſubclavian gives off the ſubmaxillary.
9. The *pulmonary artery*, from the right ventricle of the heart is divided into the right and left branch.	Is diſtributed into innumerable branches and ramuli of a net-like figure into the pulmonary veſicles.	This artery carries the blood through the whole ſubſtance of the lungs, to conquaſſate and prepare it.
10. The *right lobe of the lungs*, a portion of it off, to ſhew the larger veſſels; the right is the larger, and is divided into three leſſer lobes, and theſe again into innumerable ones.	The lungs are connected with the ſternum and vertebra by means of the mediaſtinum, with the heart by the pulmonary veſſels, with the arteria aſpera.	1. Reſpiration, by which the blood is conquaſſed, and altered. 2. Serves for the voice. 3. The ſenſe of ſmelling. 4. Expels the phlogiſtic particles of blood.
11. The *left lobe of the lungs*, is divided into two lobes.	The ſubſtance conſiſts merely of ſmall veſicles and various veſſels.	Its uſe is ſimilar to that of the right lobe.
12. The *diaphragm*, is a tranſverſe ſeptum below the lungs, its ſuperior ſurface is covered by the pleura, its inferior by the peritoneum.	Its ſubſtance is carnous, muſcular, tendinous; it is connected with the ſternum, ſpurious ribs, pericardium, mediaſtinum, liver, and lumbar vertebræ.	It ſuſtains the lungs, and is eſſential to reſpiration; it alſo excites motion and preſſure on the inteſtines.
13. The *liver*, is a great viſcus in the right hypochondrium, and ſomewhat in the epigaſtric region.	The ſubſtance is vaſcular; the interior membrane of the liver, which inveſts the whole ſubſtance, is from the peritoneum.	The liver ſeparates the bile. The hepatic duct unites with the cyſtic duct, and becomes the ductus choledochus.
14. The *ligamentum rotundum*.	Becomes tendinous in the adult.	Suſtains the liver in its ſituation.
15. The *gall-bladder*, oblong, pyriform, in the inferior part of the liver.	Conſiſts of *tunics*, *common*, *vaſcular*, *muſcular*, and *nervous*.	Collects the bile into the duodenum, through the cyſtic duct.
16. The *ventricle*, or *ſtomach*, is preſſed by the liver to the left ſide. Is a large cavity between the liver and ſpleen.	Is connected with the œſophagus, omentum, ſpleen, the left orifice, called cardia, is annexed to the diaphragm; the right *pylorus* to the duodenum.	The ſtomach receives, retains, digeſts, prepares the food, and dilutes it with the gaſtric juice, and ſends it through the duodenum to the inteſtines.
17. The *ſmall inteſtines* in the middle of the abdomen, they are: the duodenum, jejunum, ileum; all which are connected and regulated by the meſentery: the large inteſtines are the cœcum, colon, and rectum.	1. The duodenum is twelve fingers long. 2. The jejunum fifteen ſpans, ſituated in the umbilical region. 3. The ileum twenty ſpans long, in the hypogaſtric region.	The aliments are mixed in the duodenum with the bile and pancreatic juice. 2. This is moſtly empty on account of the vivid action of the lacteals. 3. Contains an infinite number of lacteals, abſorbs the chyle, and ſends it off to the glands.
18. The *ſpleen*.		

PLATE XLI. *On the abdomen.*

Name and ſituation.	*Structure, connection, &c.*	*Uſe.*
1. *Pars inferior hepatis*; inferior part of the liver: covers the duodenum, pancreas, &c.	Its *ſuperior ſuperficies* is convex; *inferior* concave.	Receives the blood of the venæ portarum, and ſeparates the bile from it.
2. *Ligamentum rotundum.*	Connects the liver to the umbilicus.	Strengthens the liver in the adult.
3. *Veſicula bilis*, or gall-bladder.	On the under ſide of the liver.	Receives the bile.
4. *Pancreas* is a great plane gland, behind the ſtomach, extending from the duodenum towards the lien, or ſpleen.	*Subſtance* is glandulous. It is connected with the duodenum, meſentery, ſplenic veſſels, and ſpleen.	Separates the pancreatic juice which ſerves to attenuate the chyle, being ſimilar to ſaliva.
5. *Lien*, ſpleen, is a viſcus in the left hypochondrium, near the bottom of the ſtomach, covered by the ribs.	*Subſtance:* cellulous, vaſcular. *Connexion* with the ſtomach, pancreas, diaphragm, and left kidney.	It receives much blood, as is evident by its veſſels; authors as yet are not agreed on its uſe.
6. *Renes*, kidneys; behind the ſac of the peritoneum, in the lumbi around the bodies of the ſuperior lumbar vertebræ.	*Subſtance* is firm and hard. 1. Exterior, *cortical*. 2. Interior, *tubulous*	To ſecrete the urine in the pelvis for depurating the blood, and to convey it by the ureters to the veſica, or bladder.
7. *Aorta deſcendens.* From the arch to the diaphragm it gives the following rami.	1. Bronchial; 2. œſophageal; 3. eight inferior intercoſtal; 4. four diaphragmatic arteries.	1. They run to the veſiculæ pulmonales; 2. to the œſophagus; 3. to the eight ribs to the ſternum; 4. to the diaphragm.
In the abdomen and below it gives.	1. Cœliac artery; 2. meſenterica ſuperior; 3. renal; 4. ſpermatic; 5. meſaraica inferior; 6. lumbares; 7. ſacral; 8. iliac. The rami go to	1. To the ſtomach, liver, ſpleen; 2. Inteſtinum jejunum, cœcum, colon; 3. kidneys; 4. teſticles; 5. colon inteſtinum rectum; 6. lumbi & abdomen; 7. near the os ſacrum; 8. to the crura.
8. *Vena cava aſcendens*, vel *inferior*; the rami, or branches, are:	1. Hepatic; 2. renal; 3. right ſpermatic; 4. lumbar; 5. ſacral; 6. iliac veins.	Receive all the blood returning from the abdomen and inferior extremities.
9. *Vena emulgens*; right and left; are inſerted into the trunk of the vena cava.	They are divided near the kidneys into two, three, four, or five rami.	They return the blood from the kidneys to the vena cava.
10. The ſtylus below the *ſpermatic veſſels* and *inferior meſenteric artery*, and above the *ureters*.	The *ſpermatic arteries* ariſe from the aorta; the right vein is emptied into the vena cava.	They carry the blood to the teſtes. The left vein flows into the emulgent.
11. *Ureters*; two canals which terminate in the veſica urinaria.	*Subſtance* is membranaceous. The ſize of a pen.	They carry the ſecreted urine to the veſica urinaria, or bladder.
12. *Vaſa iliaca*; iliac veſſels; ariſe from the aorta deſcendens; about the laſt vertebra of the loins are divided into two rami.	1. Internal, commonly called *hypogaſtrica arteria* and *hæmorrhoidalis externa*. 2. External, whence *epigaſtric*; 2. *pudenda*; 3. *external* and *internal cruralis*.	They proceed towards the bladder, rectum, parts of generation, nates, &c. 1. goes through the muſculus rectus to the mammæ; 2. to the pudenda; 3. to the crura and feet.
13. *Inteſtinum rectum*; begins from the colon to the loweſt vertebra of the loins; and terminates in ano.	The inteſtinum rectum is annexed to the os ſacrum, coccygix, and bladder in men; but in women, to the vagina uteri.	The rectum is ſurrounded with much fat, that in the excretion of the fæces it may be eaſily dilated.
14. *Veſica urinaria*, or urine bladder; ſituated in the pelvis; the two ureters carry the urine from the kidneys; but the urethra diſcharges it at proper periods through the penis.	1. It is connected with the os pubis by the peritonæum; 2. with the parts of generation by the urethra, 3. with the umbilicus by the urachus and umbilical arteries; 4. in the males it coheres with the inteſtinum rectum; in women, with the vagina uteri.	Deſtined to collect and expel the urine; 1. by its retaining, and 2. by its muſcular expulſive powers, through the urethra; which action is called, voiding of urine.

PLATE XLII.

FIGURE I. *The three tunics of the eye taken away from the one ſide to ſhew the humors in their natural ſituation.*

a. The optic nerve. *b.* The three tunics of the eye reflected. *c.* The vitreous humour. *d.* The cryſtalline lens. *e.* The retina laying under the vitreous humour. *f.* The anterior termination of the retina. *g.* The poſterior ſtriated part of the ciliary body. *h.* Folds of the ciliary proceſſes reſembling white rays. *i.* A place where, from both ſides of the lens, white rays appear diſtant from the *lens*. *k.* The pupil conſpicuous through the pellucid lens.

FIGURE II. *Arteries of the eye.*

A. The ſuperior palpebra. B. The ſuperior oblique muſcle with the trochlea. C. The adducent muſcle. D. The depriment muſcle. E. The abducent muſcle. F. The anterior part of the attollent muſcle cut away. G. The lachrymal gland. H. The bulb of the eye. I. The ambit of the cornea. K. The optic nerve. L. The firſt branch of a nerve of the fifth pair cut off. *a.* The ophthalmic artery. *b.* Ramuli of the optic nerve to the dura mater in the foramen opticum. *c.* Small acceſſory arteries with the firſt branch of the fifth pair of nerves ariſing from the meningeal and inſerted into the lachrymal branch. *d.* The lachrymal branch. *e.* Ramuli to the abducent muſcle. *f.* Very thin ciliar arteries ariſing from the lachrymal and ending in the ſclerotic. *g.* The inferior muſcular branch. *h.* A larger branch of it, from which ariſes the central artery covered by the optic nerve, &c. *i.* The interior, inferior ciliary. *k.* A branch of the adducent and inferior oblique muſcle. *l.* A branch of the depriment muſcle. *m.* The exterior ciliar muſcle. *n.* A thinner branch of it, which is principally diſperſed over the ſurface of the ſclerotica. *o.* Ciliar ſurculi perforating the ſclerotica. *p.* A ſurculus to the ſclerotica. *q.* The arterial circle around the paſſage of the optic nerve through the thick part of the ſclerotica. *r.* A branch to the attollent muſcle cut off. *s.* Ramuli of the optic nerve to the dura mater. *t.* The ſupra-orbital branch accompanying the frontal nerve. *u.* The poſterior ethmoid artery. *x.* A branch of the adducent muſcle. *y.* A branch of the ſuperior oblique muſcle. *z.* The anterior ethmoid artery. 1. A trunk below the trochlea emerging from the orbit, and divided into palpebral and other anterior rami. 2. 2. 2. Ramuli with the recti muſcles of the eye, which go off near the cornea into 3. 3. 3. anterior ciliary arteriolæ perforating the ſclerotica.

FIGURE III. *The long and ſhort ciliary arteries: circle of the iris.*

a. Sclerotica reflected. *b. b.* Two long ciliar arteriolæ. *c. c.* Two larger rami, into which every long arteriolæ is divaricated. *d. d. d.* Ramuli ſpringing out of each branch of the bifurcation, and going to the interior circle. *e. e.* The interior circle. *f.* This is duplex in ſome places. *g. g. g.* The anterior ciliary arteries, inſerted into the interior circle. *h. h. h.* Short ciliary arteries. *i. i. i.* A mutual anaſtomoſis between them behind the ciliar orbiculus. *k. k.* Surculi going into the circle of the iris. *l. l.* The ſmall arteries of the iris. *m. m.* Arches by which they are joined about the leſſer annulus of the iris. *n.* Surculi going from theſe arches towards the pupil.

FIGURE IV. *The fabric of the iris and ſmall ciliar nerves.*

a. The optic nerve. *b.* The ſclerotic reflected. *c.* Other large ciliar nervuli anteriorly divided into branches. *d.* Other leſs branches ſcarcely ramous. *e. e.* Two large venous veſſels obiter expreſſa. *f.* A foramen in the ſclerotica through which paſſes the venous veſſel. *g.* The leaſt venous veſſel. *h.* The ciliary orbiculus. *i.* The great annulus of the iris. *k.* The parallel ſerpentine fibres of the iris. *l.* Larger fibres joined together per arcum, the greater number of which conſtitute the leſſer circle of the iris. *m.* The interior ſmaller annulus of the iris. *n.* Straight fibres from the convexity of the arches going to the pupil. *o.* The pupil.

FIGURE V. *The ſmall veins of the choroides and iris.*

a. The vagina of the optic nerve cut from the dura mater and reflected. *b.* The optic nerve. *c.* The central venula running on the ſurface of the nerve, and hiding itſelf near the eye in the ſubſtance of the nerve. *d. d. d. d.* Four reflected angles of the ſclerotica. *e. e. e.* Angles of the cornea. *f. f. f.* The black circulus which diſtinguiſhes the cornea from the ſclerotica. *g. g. g.* Small foramina of the ſclerotica near the cornea, for the paſſage of the anterior ciliary veſſels, arteries, and veins. *h.* Foraminulum majus, for the vorticoſe veſſel. *i. i.* Two larger vorticoſe veſſels from the other ſide, divided into many ramuli. *k.* Ramuli running backwards, ſome of which meet. *l. k.* With the poſterior ciliary venulæ perforating the ſclerotica near the inſertion of the optic nerve. *m.* Anterior ramuli going to the iris. *n.* Vas vorticoſum minus, leſs elegant. *o.* The intermediate acceſſory venula joined to both the larger vorticoſe veſſels, divided into many ramuli. *p.* Long ciliar venulæ. *q.* The ciliar nervulus, the conſtant companion of the venula longa. *r.* Two ramuli, into which the long ciliar venula is divaricated, under the calloſity of the ciliar orbiculus. *s. s.* Three anterior ciliar venulæ cut off. *t. t.* Lateral ramuli with which the venulæ paſſing from the choroides into the iris communicate. *u.* Parallel ſerpentine venulæ of the iris. *x.* The anterior lamella of the iris reflected. *y.* The pupil.

PLATE XLIII.

FIGURE I.

Nerves of the bulb and muſcles of the eye.

A. Bulb of the eye.
B. Lachrymal gland.
C. Muſculus adducens.
D. Muſculus attollens.
E. Levator palpebræ.
F. Muſculus deprimens.
G. Muſculus adducens.
H. Obliquus ſuperior.
I. Trochlea.
K. Part of the muſcle obliquus inferior.
L. Courſe of the carotids in receptaculo.
M. Carotid penetrating into the cavity of the cranium.
N. Ophthalmic artery ariſing from the carotid.
a. Optic nerve penetrating its foramen.
b. Nerve of the fifth pair in the cavity of the cranium.
c. Third branch of a nerve of the fifth pair.
d. Second branch of the ſame.
e. Firſt branch.
f. Frontal branches of the firſt ramus *e.* again divided into two branches.
g. Naſal ramus of the firſt branch *e.*
h. h. Ciliar ramuli of the branch *g.* running above the nerve.
i. Lachrymal branch of the branch *e.*
k. Nerve of the fifth pair.
l. Double nerve of the ſixth pair in receptaculo.
m. Double radix of the intercoſtal nerve from the ſixth pair.
n. Inſertion of the ſixth pair into the abducent muſcle.
o. Trunk of the nerve of the fifth pair.
p. Superior minor branch of the third pair.
q. Ramuli of ramus *p.* to the attollent muſcle.
r. Ramulus of branch *p.* to the levator palpebræ.
s. Inferior major ramus of the third pair.
t. Branch of ramus *s.* to the adducent muſcle.
u. Branch of ramus *s.* to the depriment muſcle.
x. Branch of ramus *s.* to the obliq. inferior.
y. Ophthalmic ganglion ſeparated from the optic nerve, and pulled backward to ſhew the diviſion of the third pair.
z. Short radix of the ophthalmic ganglion from the nerve of the obliq. inferior.
1. Long root of the ganglion from the naſal ramus of the fifth pair.
2. Superior faſciculus of the ciliary nerves formed by four nervuli.
3. Faſciculus inferior.
4. Ramulus of the inferior faſciculus ſeceding outwardly from the others.
5. Ramulus inſerted in either ſurculus *h. h.* ariſing from the naſal nerve, aſcending to the external ſide of the optic nerve beneath the ſuperior faſciculus.
6. Interior inferior ciliar nerve of the inferior faſciculus.

FIGURE II.

Ophthalmic ganglion with ciliar nerves.

A. The attollent muſcle pulled back a little to ſhew the inferior part to which the nerve is inſerted.
B. Levator palpebræ.
C. Carneous portion of the trochleator.
D. Tendo of the trochleator with trochlea.
E. Portion of the adducent muſcle with a branch of the nerve of the third pair.
F. Portion of the deprimens with a nervous branch inſerted into it.
G. Internal view of the abducent muſcle.
H. Inſertion of the obliquus inferior.
I. Portion of the ſuperior palpebra.
a. Optic nerve.
b. Nerve of the fourth pair cut off.
c. Nerve of the ſixth pair inſerted in its muſcle.
d. Nerve of the third pair.
e. Superior ramus.
f. f. Surculi of branch *e.* to the attollent muſcle.
g. A branch of ramus *e.* to the levator palpebræ.
h. Inferior branch of a nerve of the third pair.
i. Branch to the deprimens.
k. Branch to the adducent *caſually expreſſed.*
l. Branch to the inferior oblique muſcle.
m. Frontal branch of the fifth pair cut off.
n. Naſal branch of the ſame.
o. o. Two ciliar nervuli ariſing from the naſal.
p. Ophthalmic ganglion annexed to the exterior ſide of the optic nerve.
q. A long root from the naſal ramus of the fifth pair.
r. Short radix from the nerve *e.* of the oblique inferior muſcle.
s. Superior faſciculus of ciliary nervuli compoſed of three nervuli.
t. Large inferior faſciculus.
u. Surculus always bent outwardly, and acceding to the bulb by a long circuitous courſe.
x. Interior and inferior ramus of this faſciculi inſerted into the branch of either ariſing from the naſal.

PLATE XLIV.

Figure I.

Membranula of the ciliar corona, by which the cryſtalline lens is joined with the vitreous, and the Petitian canal turgeſces, or ſwells, with flatus.

- *a.* Vitreous humour.
- *b.* Cryſtalline lens.
- *c.* Serrated annulus conflated, formed from the nigrum pigmentum lying on the anterior part of the vitreous humor and the corona ciliaris.
- *d.d.* Bullulæ, into which the membranule of the ciliar corona is elevated upon the admiſſion of flatus.
- *e.* Vulnuſculum, by which the air is admitted.

Figure II. & III.

Artery of the cryſtalline lens conſpicuous on its poſterior view, and indeed,

In Fig. 2. Its natural magnitude, and
In Fig. 3. Increaſed in magnitude by a microſcope.

Figure IV. V. VI.

Three figures of cryſtalline lens from men of different ages, and prinicpally,

Fig. 4. From a new-born infant.
Fig. 5. From an infant ſome years old.
Fig. 6. From a grown-up man about twenty years old, to ſhew that the lens is always more convex the younger the perſon.

Figure VII.

Cryſtalline lens beginning to form triangular ſquammous appearances after maceration in water.

Figure VIII.

Sebaceous glands of Meibomius from the poſterior view of the palpebræ.

- *a.* Tarſus of the ſuperior palpebra.
- *b.* Tarſus of the inferior palpebra.
- *c.* Internal canthus.
- *d.d.* Glandulous plexus, commonly called Meibomian glands.
- *e.e.* Orifices of thoſe plexus in the extreme margin of the palpebræ.

Figure IX.

- *a.* Internal canthus of the eye.
- *b.* Inferior palpebra.
- *c.* Aponeuroſis of the muſculus levator palpebræ.
- *d.* Meibomian glands conſpicuous per aponeuroſin.

Figure X.

Viæ lachrymarum.

- *a.* Orifices of Meibomian glands.
- *b.* Semilunar membranule before the caruncle lachrymalis.
- *c.* Caruncula lachrymalis.
- *d.d.* Puncta lachrymalia.
- *e.e.* Two canaliculi joined together near the naſal ſac.
- *f.* Lachrymal ſac.

The great utility of theſe, and other minute anatomical demonſtrations of the organ of viſion, will appear to thoſe who ſtudy the diſeaſes of the eye, many of which diſorders would be incomprehenſible without ſuch previous knowledge. In the third volume of the *Rational Practice of Phyſic*, after a ſhort introduction on the doctrine of viſion, and the defective modes of treating eye diſeaſes; I have demonſtrated, that there are 118 diſeaſes of the eyes, eye-lids, &c. and it is hoped, many important improvements will be found in that work worthy of the ſerious attention of ſurgeons, and practitioners of medicine, in general.

PLATE XLV.

FIGURE I.

Origin of the tunics of the eye; internal appearance of the the choroides.

a. Optic nerve cut off. *b.* Exterior lamina of the vagina of the optic nerve. *c.* Interior lamina of the vagina of the optic nerve. *d.* Pia mater of the optic nerve. *e.* Central artery. *f.* Part of the cribroſe lamina through which the medullary ſubſtance of the optic nerve paſſes. *g.* The ſclerotica poſteriorly thick where it is connected with the vagina of the nerve. *h.* A circle ſurrounding the cribroſe lamina whence the pia mater of the optic nerve is reflected, and *i.* goes into the interior lamina of the ſclerotica. *k.* Parallel arteries apparent in the internal ſurface of choroides. *l.* Vaſcular reticulum obſcurely adumbrated; by which the arteries of the choroides are covered. *m.* White folds of the ciliary proceſſes. *n.* Iris. *o.* Connection of the ſclerotica with the cornea.

FIGURE II.

Reticulum laid over the choroides only viſible by a very magnifying microſcope.

a. Arteriolæ of the internal ſurface of the choroides.
b. Vaſcular reticulum.
c. Natural magnitude of this portion of the choroides, of which this is the reſemblance.

FIGURE III.

Annulus of the ciliary proceſſes obſcurely ſeen a little enlarged.

a. Part of the ſclerotica. *b.* Part of the choroides. *c.* Ora ſerrata, which diſtinguiſhes the annulus from the remaining choroides. *d.* Poſterior part of the ſerrated annulus. *e.* Anterior part, compoſed of the folds of the ciliar proceſſes. *f.* Anterior, broad, eminent part of the folds. *g g.* Some folds terminated, in the extreme, bifid. *h.* Poſterior part of the fold formed by many radiculæ. *i.* Poſterior view of the iris, called uvea, ſtriated. *k.* Pupilla.

FIGURE IV.

Three folds of the ciliar proceſſes, whoſe vaſcular fabric is obſervable in a good microſcope.

a. Innumerable parallel arteriolæ, conſpicuous in the internal ſurface of the choroides. *b.* Vaſculum majuſculum, running in the eminent margin. *c.* The arch through which the vaſcula in the apex of the plica are joined together. *d.* Reticulum vaſculoſum. *e.* Poſterior appearance of the iris. *f.* Natural magnitude of this portion, which is drawn a little increaſed.

FIGURE V.

A portion of the leſſer annulus of the iris ſeen and delineated by means of a microſcope.

a a. The arch which the arteriolæ of the iris form around the leſſer annulus deſigned in the preceding figure, *vid. m m.* *b b.* Ramuli running from thoſe arches towards the pupilla. *c c.* Ramuli running tranſverſely in the annulus minor of the iris and led parallel with the ora pupillæ; which ſome ſeem to have taken for orbicular fibres.

FIGURE VI.

Veins of the eye.

A. A portion of the ſuperior palpebra delineated in its paſſing. B. Lachrymal gland. C. Abducent muſcle. D. Poſterior part of the attollent muſcle cut off. E. Anterior part. F. Poſterior part of the levator palpebræ cut off. G. Anterior part. H. Superior oblique muſcle with the trochlea. I. Optic nerve entering the optic foramen. K. Nerve of the fourth pair. L. Firſt branch of the nerve of the fifth pair. *a.* Trunk of the ophthalmic vein coming out of the receptaculum. *b.* Poſterior ethmoid venula. *c.* Ramulus to the optic nerve. *d.* Superior ciliar venula. *e.* Three ſurculi perforating the ſclerotica. *f.* Ramuli per ſcleroticam ludentes. *g.* Inferior muſcular ramus. *h.* Lachrymal branch. *i.* Anaſtomotic branch between the lachrymal and inferior. *k.* Trunk running above the bulb. *l.* Ramulus to the attollent muſcle. *m.* Interior ramus. *n.* Ramus from the trunk inſerted. *o.* Into the anaſtomatic ramus between the trunk and lachrymal. *p.* Interior ciliaris. *q.* Anterior ethmoid. *r.* Trunk going out of the orbit communicating with *s.* the ſuperior palpebræ, and *t.* naſal. *u.* Anterior ciliar venula ariſing from the muſcular ramus, and perforating the ſclerotica.

PLATE XLVI. *The muſcles of the bulb of the eye.*

FIGURE I.

Muſcles with the levator palpebræ ſuperioris.

a. The bulb of the eye.
b. The optic nerve in the opuſcular cavity.
c. The optic nerve cut off without the orbit.
d. Portion of the dura mater, which departs from the optic nerve, and falls into the perioſteum of the orbit.
e. The levator palpebræ ſuperioris, ariſing from an angle of the diviſion of the dura mater, and terminating in a broad aponeuroſis.
f. The attollens, the greateſt part covered by the levator palpebræ.
g. The obliquus ſuperior inflected through the trochlea.
h. The inſertion of the obliquus inferior.
i. The depriment muſcle.
k. The abducent ariſing by a double head.
l. The leſſer ſuperior head.
m. The inferior head.
n. The interval between the heads, through which the nerves collected in faſciculum are terminated.
o. The firſt branch of a nerve of the fifth pair.
p. From which firſt branch the lachrymal branch is cut off.
q. The frontal branch cut away.
r. The naſal branch.
s. A ſurculus of the naſal branch, which conſtitutes the long root of the ophthalmic ganglion.
t. A nerve of the third pair.
u. A nerve of the ſixth pair.

FIGURE II.

The muſcles of the eye without the levator palpebræ.

a. The bulb of the eye.
b. The optic nerve within the orbit.
c. The optic nerve without the orbit.
d. Portion of the dura mater which goes into the perioſteum.
e. The levator palpebræ cut away near its origin.
f. The ſuperior oblique muſcle inflected through the trochlea.
g. The attollent muſcle.
h. Its tendon dilated near the inſertion.
i. The adducent muſcle.
k. Both the muſcles near their riſe are ſo connected with one another, that it ſhould ſhew the levator palpebræ in its origin not to pertain to the vagina of the optic nerve, but placed on both.
l. The depriment muſcle.
m. The abducent muſcle.
n. The ſuperior head connected with the attollent.
o. The inferior head.
p. The interval between each head.

FIGURE III.

The common tendon, from which the adducent, abducent, and depriment muſcles ariſe.

a. The optic nerve cut away near its entrance.
b. The broken oſſeous ſeptum between the optic foramen and round commencement of the ſphenoid fiſſure.
c. The dura mater cut away at its entrance into the perioſteum of the orbit.
d. The attollent muſcle ariſing from a diviſion of the dura mater cut away.
e. The levator palpebræ ſuperioris cut away.
f. The common tendon from which the three muſcles, viz. the adducent, abducent, and depriment, ariſe.
g g g. Tendinous expanſions ariſing from the ligamentum commune, going to their muſcles.
h. The abducent muſcle.
i. The depriment muſcle.
k. The adducent muſcle.

FIGURE IV.

The ſuperior oblique muſcle.

a. The optic nerve moved from its ſituation and inflected downwards, the better to ſhew the origin of the obliquus ſuperior.
b. The abducent muſcle cut away.
c. The interval between the heads of this muſcle.
d. The attollent muſcle cut away near its commencement.
e. The inſertion of this muſcle into the bulb of the eye.
f. The levator palpebræ cut off.
g. The adducent muſcle cut away.
h. The origin of the ſuperior oblique muſcle from the perioſteum of the parietes of the internal part of the orbit.
i. The tendon inflected through the trochlea.
k. The trochlea.
l. The tendon gradually dilated near its inſertion.
m. The inſertion of the obliquus inferior.

FIGURE V.

The inferior oblique muſcle.

a. The bulb of the eye.
b. The abducent muſcle.
c. The depriment muſcle.
d. The inferior oblique muſcle ariſing from the anterior ora of the orbit.
e. The inſertion of this muſcle into the bulb of the eye.

PLATE XLVII.

FIGURE I. *Repreſents the heart of a woman, with its contiguous veſſels injected with wax from the right ſide, in its natural ſituation.*

A. The whole of the *inferior vena cava*, that is annexed to the right auricle and diaphragm.	It lays upon the diaphragm on its plane ſide, with the apex of the ſixth rib towards the cartilage of the left ſide.	It receives the blood returning from all the inferior parts after the ſecretions are made.
B. The *ſuperior vena cava* inſerted into the right auricle; its branches are	The right and left ſubclavian.	They receive the blood of the thorax.
	The external jugulars receive	The frontal, angular, temporal, auricular, ranine, and occipital veins.
	The internal jugulars receive	The lateral ſinuſes of the dura mater, the guttural and maxillary veins.
C. The *right auricle*, reſembling in ſome degree an horſe's ear, from which it received its name.	The name of *auricula* is applied to the two cæcal ſerrated ſacs. To the remaining cavity of the atria the denomination of *ſinus* is applied.	It empties the blood received from the vena cava into the right ventricle.
D. The *right ventricle of the heart*.	It is called with propriety the *anterior*; it is much weaker than the other.	It protrudes the blood into the pulmonary arteries.
E. A *portion of the right auricle*, to be ſeen in this ſituation of the heart which in form ſomewhat reſembles a dog's ear.	The auricles are connected by the means of membranes with the coronary veins to the heart.	The auricles are ſeparated by means of a ſeptum into the *right* or *anterior*, and *left* or *poſterior antrum*. The ſeptum in adults is ſhut, in the fœtus perforated.
F. The *pulmonary artery* ariſes from the right ventricle of the heart.	It is furniſhed with three ſemilunar valves ariſing from the heart; it divides into two branches.	1. The right pulmonary artery. 2. The left pulmonary ditto; they are diſtributed through the ſubſtance of the lungs.
G. The *aorta* (or trunk of the arteries of the body) riſing from the left ventricle between both auricles and the pulmonary arteries.	The aorta, when ſcarcely out of the heart, emits coronary arteries; then, on the left ſide, towards the ſpina dorſi, it makes a great arch.	From the convex part of the arch come 1. The *arteria innominata*, from which the *right carotid* and *right ſubclavian*. 2. The *left carotid*. 3. The *left ſubclavian*.
H. The poſterior *portion of the left auricle*.	It is alſo called a ſacculus of pulmonary veins.	Four pulmonary branches go into the left ſinus of the heart.
I. The *bronchial arteries of Ruyſch*.	They are diſtributed through the bronchial veſicles and the branches of the arteria aſpera.	They ſerve to nouriſh the lungs.
K. The *coronary arteries and veins of the heart*, ariſe from the trunk of the aorta above the ſemilunar valves.	Arteries are diſſeminated through the ſubſtance of the heart, and at length go into the veins of the heart.	The veins bring back the venous blood from the ſubſtance of the heart into the right auricle.

FIGURE II. *Repreſents the ſame heart from the left ſide in the ſame ſituation of the body, as if it were beheld through the ribs.*

A. The *aorta*, ariſing from the left ventricle.	The return of the blood prevented by the ſemilunar valves.	Sends off arteries all over the human body.
B. *Part of the right ventricle* with the pulmonary artery.	The pulmonary artery paſſing under the arch of the aorta, divides into two branches.	They proceed to the right and left lobes of the lungs.
C. The *left ventricle*, with the arteries and coronary veins. It is with more propriety called the *poſterior*.	Conſtitutes the heart primitively, is leſs but ſtronger than the right ventricle.	The orifice opening towards the atrium has only two mitral valves.
D. The auricular part of the *left auricle*.	Adheres to the left ſide of the pulmonary artery.	Is ſeated on the left ventricle.
E. The greateſt part of the *left auricle*.	Is called a ſucculus of pulmonary veins.	The four trunks of the pulmonary veins are inſerted in this auricle.
F. The *canalis arterioſus* runs from the trunk of the pulmonary artery in the fœtus into the aorta.	Moves the blood from the trunk of the pulmonary artery to the aorta.	Is cloſed in adults, and becomes a ligament.
G. The greateſt branch of the aorta.	Deſcends towards the lower parts.	

PLATE LXVIII. *The circulation of the blood.*

The organs of the circulation of the blood.	Are the heart and arteries.	By their power the blood is propelled into every part of the body.
The *heart* of a man is of a conical figure ſecundum axim perfectum.	In birds and brutes it reſembles almoſt a perfect cone.	It is the primary organ of the circulation.
The *heart* (G) adheres by the vena cava to the diaphragm.	The whole of its flattened ſurface lies upon the diaphragm.	During the motion of the diaphragm, the heart is either elevated or depreſſed.
The *heart* conſiſts of four concave muſcles, viz. *two auricles* and two *ventricles*, which receive the blood and immediately propel it.	The cavities ſtimulated by their repletion contract; the valves prevent the return of the blood when received: the fibres being ſo diſpoſed, that by their contractile power they ſend out the blood with great violence.	The offices of the auricles are: that they ſhould divide the blood, or its various particles, into juſt parts, by keeping its circulating courſe, &c.
A. The *right auricle*, filled with blood and irritated by its repletion to the motus inſtrumentalis begins to contract by conſtringing the oſtia of either venæ cavæ.	Then the muſcular fibres ſtretched from the parietes of the auricle, elliptically ſurround each vena cava, which ſo cloſes both as to prevent the return of the blood into the veins.	The contraction of the auricle protrudes the blood into the right ventricle with a force ſufficient to overcome the natural (not inſtrumental) contraction of the ventricle.
B. The *right ventricle*, filled with blood and irritated to muſcular contraction, expands its valvulæ tricuſpidales (1.)	The valves mutually compreſſed together entirely prevent the return of blood into the right auricle.	The contraction of the ventricle throws the blood into the pulmonary artery with a force equal to overcome the elaſtic power of that artery.
C. The *pulmonary artery*, compreſſes the blood by its elaſtic reſilition and ſtimulated tenſion, as well as by the relaxed capillary arteries.	And by its firſt impetus compreſſes the *ſemilunar* (2.) valves at that time relaxed.	Thus the blood is prevented from returning into the ventricle, and is thrown into the pulmonary veins.
The *pulmonary veins*, convey the blood received from the arteries to the left auricle.	This takes place during the compreſſion of the lungs in reſpiration.	The blood is impelled into the left auricle, then relaxed with a force ſuperior to the natural (not inſtrumental) contraction of the auricle.
D. The *left auricle*, filled and irritated by its repletion to the inſtrumental motion contracts itſelf.	And ſo conſtringes the oſtia of the pulmonary veins, as to prevent the return of the blood into them.	The following contraction protrudes the blood into the left ventricle.
E. The *left ventricle*, filled with blood, and irritated by its repletion to contract, expands its *mitral valves* (3.)	(3.) The *mitral valves* ſo expanded and compreſſed with blood prevent the return of the blood into the left auricle.	The following contraction impels the blood into all the arteries of the body, with an impetus ſuperior to the elaſtic power of the arteries.
F. The *aorta*, and arteries of the body filled and expanded with blood, and irritated to contract, collect all their power at that time, compoſed of elaſtic reſilition and ſtimulated tenſion; and at once protrude the blood by the *ſemilunar valves*.	The return of the blood into the ventricle is prevented by the valves being depreſſed.	This protruding power throws almoſt an equal quantity of limpid and groſs blood, collected from every part of the body, through the vena cava into the right auricle then relaxed.
G. The *inferior cava*, it joins the heart with the diaphragm breviſſimo tractu.	Receives the blood from all the parts below the diaphragm.	Joined with the ſuperior cava; it ſends the blood into the right auricle.

The circulation of the blood, briefly conſidered, is as follows: The *vena cava* forces the blood into the *right auricle* of the heart, which diſcharges it into the *left ventricle*; from thence the blood is propelled to the pulmonary artery, and brought back by the pulmonary veins to the right auricle of the heart, which forces it into the right ventricle, and from thence it paſſes to the aorta, which by branches diſtributes the blood through the whole body. The blood is brought back to the *vena cava* from all parts by veins. All this has been indubitably proved.

PLATE XLIX. *Of the larynx and pharynx.*

Figure I. *Repreſents the remaining parts of the larynx, after cutting through the left ſide of the thyroid cartilage, with the muſcles which are placed on the thyroid ſide, alſo thoſe which are placed in the poſterior part of the larynx.* *a.* Anterior crico-thyroid ligament. *b.* Membrane which forms the lateral part of the glottis. *c. Poſterior crico-arytænoideus.* *d. Lateral crico-arytænoideus.* *e. f.* A *faſciculus* from the interior and ſuperior part of the thyroidea, ariſing not far from its fiſſure, and inſerted in the baſe of the arytenoidea. *f.* The commencement from the thyroidea cut away. *g. Thyreo-arytænoideus.* *h. i. k.* A *thin texture* of carneous fibres, which ariſing from the thyroid cartilage aſcends near the exterior part of the origin of thyreo-arytænoideus. *h.* Through the exterior part of the *thyreo-arytænoideus*; then *i.* by the ſides of the glottis to the epiglottis. *k.—l. Depreſſor* of the epiglottis. *m. Left oblique arytænoideus.* *n. Right oblique arytænoideus.* *o. Tranſverſe arytænoideus.*

Figure II. *Is the ſame texture of the cartilages of the larynx which is naked in Fig.* I. *with the muſcles and membranes removed.* *a. b.* Right part of the thyroid cartilage, the left of which is removed *b. c.* Cricoid cartilage. *d. e.* Arytænoid cartilages. *e.* The little heads of the cartilages. *f.* Epiglottis.

Figure III. *Repreſents the order of the muſcles ſituated around the pharynx, ſeen from the poſterior part. In order to ſhew it better, beſides the pharynx, the beginning of the æſophagus continued to it, and the neighbouring parts of the os hyoides, larynx, and aſpera arteria, there is alſo added part of the head of the naked bone, to which the adjoining pharynx is added.* *a.* Inferior part of the cranium. *b.* Styliform proceſſes. *c.* Pterygoid proceſſes. *d.* Os maxillare. *e.* Superior dentes molares. *f.* Inferior molares. *g.* Extreme cornua of the os hyoides. *h.* Hyothyroid ligaments. *i.* Arteria aſpera cut off. *k.* Oeſophagus cut off. *l.* Conſtrictores *inferiores* of the pharynx. *m.* Interior fibres of the œſophagus. *n. Conſtrictores medii* of the pharynx. *o. Conſtrictores ſuperiores* of the pharynx. *p. Circumflexi* of the palatum molle. *q. Stylopharyngei.*

Figure IV. *Exhibits the neareſt view after removing the conſtrictor inferior of the pharynx.* *a.* Naked membrane of the pharynx. *b.* Styliform proceſſes. *c.* Naked membrane of the inferior part of the pharynx. *d.* Extreme cornua of the os hyoides. *e.* Hyothyroid ligaments. *f.* Thyroid cartilage. *g.* Cricoid cartilage. *h.* Aſpera arteria cut off. *i.* Conſtrictores medii of the pharynx. *k.* Conſtrictores ſuperiores of the pharynx. *l.* Levatores of the palatum molle. *m.* Circumflexi of the palatum molle. *n.* Stylo-pharyngei. *o.* Palato-pharyngei. *p.* Poſterio crico-arytænoideus.

Figure V. *Shews the neareſt view upon removing the conſtrictor medius of the pharynx.—a. b. c. d. e. f. g. h. k. l. m. n. o. p.* as in the preceding figure.

Figure VI. *Upon removing the ſuperior conſtrictor of the pharynx*, is ſeen *a. c. d. e. f. g. h. l. m. n. o. p.—q.* Hamuli of the pterygoid proceſſes.

Figure VII. *The interior of the pharynx.* *a.* Poſterior part of the pharynx and œſophagus cut off. *b.* Tubæ euſtachianæ. *c.* Septum of the nares. *d.* Palatum molle with the uvula. *e.* Poſterior arches of the palatum molle. *f.* Tonſils. *g.* Tongue. *h.* Epiglottis. *i.* Membranous ſides of the glottis. *k.* Rimula of the glottis. *l.* Capitula of the arytænoid cartilage. *m.* Lateral ligament of the epiglottis. *n.* Ventriculi of the larynx. *o.* Hamuli of the pterygoid proceſſes. *p.* Extreme cornua of the os hyoides. *q.* Hyothyroid ligaments. *r.* Thyroid cartilage. *s.* Cricoid cartilage. *t.* Aſpera arteria cut off. *u.* Poſterior part of the fiſtula laryngis. *v.* Lateral ligament of the epiglottis. *w. Levatores* of the palatum molle. *x. Circumflexi* of the palatum molle. *y. Palato-pharyngei.* *z. Stylopharyngei.*

Figure VIII. *After removing the greateſt part of the membrane covering the interior of the pharynx,* are: *a.* The poſterior part of the larynx cut off. *b.* Tubæ euſtachianæ, or euſtachian tubes. *c.* The concave of the nares. *d.* Oſſa ſpongioſa. *e.* Septum of the nares. *f.* Hamuli of the pterygoid proceſſes. *g.* Uvula. *h.* Tonſils. *i.* Tongue. *k.* Epiglottis. *l.* Membranous ſides of the glottis. *m.* Capitula added to the arytænoid cartilages. *n.* Cricoid cartilage. *o.* Thyroid cartilage. *p.* Thyroid ligament. *q.* Extreme cornua of the os hyoides. *r. Levatores* of the palatum molle. *s. Circumflexi* of the palatum molle. *t. Azygos* uvulæ. *u. Palatopharyngei.* *w. Stylopharyngei.* *x. Olique arytænoidei.* *y. Tranſverſe arytænoidæus*

Figure IX. *Moſt of the parts in the preceding figure are removed, by which others are ſeen.* *a.* Poſterior part of the pharynx cut off. *b. c. d. e. f. g. h. i. k. m. n. o. p. q.* as above in the preceding *figure*. *j.* The corpus teres like a ligament. *l.* Tendinous membrane which runs through the ſuperior parts of the palatum molle coming from the nares. *r. u. w.* As in the preceding figure.

Figure X. *Some parts which were repreſented in Figure* VIII. *are taken away, and thoſe which are to be met with marked.* *a. b. c. d. e. f. g. h. k. p. q. r.* as in *Figure* VII. *l.* External parietes of the pterygoid proceſſes. *m.* The circumflexi of the palatum molle. *n.* Aponeuroſes of the circumflexi. *o.* Parts of the conſtrictores ſuperiores of the pharynx. *p.* Parts of the palatopharyngei. *q.* Stylopharyngei. *r.* Parts of the *ſalpingo-pharyngei.*

Figure XI. *This follows behind the ſuperior part of the preceding, after removing ſome of the parts.* *a. b. c. d. l. m.* as in the above *figure*.

Figure XII. *Repreſents the rectus, oris, and fauces, to ſhew the muſcles, which, upon removing the inveſting membrane,, belong to the palatum molle from this part.* *a.* Gums. *b.* Tonſils. *c.* Poſterior margins of the palatum molle. *d.* Fauces. *e.* Tongue. *f.* Conſtrictores iſthmi of the fauces. *h.* Parts of the palatopharyngei.

The figures in this plate clearly repreſent the mechanical ſtructure, &c. of thoſe curious parts which perform deglutition, or ſwallowing; a great part of the organs of ſpeech and ſounds. Singing, &c. with all the various inflexions and delightful tones of the voice, as executed by the moſt excellent ſingers, is acquired by uncommon induſtry with apt organs. Muſical ſounds are received and impreſſed on the mind by the organ of hearing, but the imitation and performing various tones by the voice, is the power of the mind acting on, and putting into particular motion the larynx, its muſcles, &c. aſſiſted by the tongue, teeth, lips, &c. The excellence of ſome in the divine art of ſinging will convince reflecting men, amongſt other things, that human beings are as unequal in their muſcular powers and organs, as in their intellectual and acquired faculties. Thoſe, whoſe organs have not an aptitude in receiving impreſſions, and an active diſpoſition to improve, can never become excellent.

PLATE L. *The organ of hearing.*

FIGURE I. *Repreſents the organ of hearing, ſomewhat greater than in its natural ſtate.*

The *ear* is the organ of *hearing*; in which three cavities are to be conſidered, viz. external or outermoſt, middle and inmoſt.

a. Auris externa; contains the auricle and meatus auditorius. *b.* The *ala*, or *pinna*; is the higheſt arched part of the auricle. *c. Helix, capreolus*; external eminence of the margin. *d. Anthelix*; interior eminence parallel to the former. *e. Scapha*; a furrow between the above-mentioned eminences. *f. Tragus, hircus*; an eminence next to the temples. *g. Antitragus*; a prominence joined with a lobe. *h. Concha*; a cavity going towards the meatus auditorius. *i. Lobe*; a part of the auricle hanging downwards. *k.* Part of the ſquamoſe temporal bone. *l. Os petroſum*; contains the internal ear, or ſeat of hearing. *m. Extremity of the maſtoid proceſs. n. Styloid proceſs. o. Sinus maſtoidei.* The internal parts of the ear are contained in the petrous bone. *p. Meatus auditorius*; in it are hairs and ceruminous glands, the canal is tortuous, anteriorly cartilaginous, poſteriorly oſſeous. *q. Membrane of the tympanum*; it is contained in a kind of ſulcus in the oſſeous annulus; it is conſtructed of four laminæ, viz. cuticle and cutis of the meatus auditorius, perioſteum of the meatus, and perioſteum of the internal cavity: *above by a ſhort tela celluloſa placed between theſe laminæ. r.* The figure of the *cavity of the tympanum* is irregular; the capacity of the cavity is increaſed by the celluloſæ of the maſtoid proceſs: the interior paries is directly oppoſed to the membrane of the tympanum, in which there are two broad oſſeous foveæ, or depreſſions, called feneſtræ; anteriorly the cavity extends by a declining orifice into the tuba Euſtachii, which behind opens into the fauces and infundibulum. *s. Chorda tympani. t. Oſſicula auditus*; malleus incus, os orbiculare, ſtapes. *u. Canales ſemilunares*; ſuperior, middle, inferior, they open into the veſtibulum. *w. Cochlea. x. Aquæductus Fallopii*; a canal extending from the labyrinth, inflecting in the petrous bone and patulous between the ſtyloid proceſs, contains a nerve. *y. Tuba Euſtachiana*; a canal partly oſſeous and partly cartilaginous, extending to the palatum, and there patulous behind the tonſils; it may be relaxed or narrowed by its muſcles; it ſerves for the admiſſion of air and ſound; when it is cloſed, or obſtructed, the hearing is diminiſhed, or aboliſhed. z. *Apertura* of the Euſtachian tube.

FIGURE II. *Malleus much larger than in its natural ſtate.*

a. Malleus. b. Its head. *c.* The neck. *d.* The long crus runs out to the manubrium. *e.* The ſhort crus goes to the maſtoid cells. *f.* The manubrium runs between the laminæ of the membrane of the tympanum, and between the perioſteum of the tympanum and meatus auditorius, to the center of its membrane, which riſes into the umbo.

FIGURE III. *Incus:* conſiſts of a body and two crura; the os orbiculare is annexed to the longer crus.

a. Interior ſurface.

FIGURE IV. *Os orbiculare*; is connected on one ſide with the long crus of the incus, on the other with the ſtapes, which is ſituated anteriorly at almoſt a right angle.

FIGURE V. *Stapes:* it adheres by its baſis to the feneſtra ovalis, and cloſes it by means of the membrane drawn round it; it has a muſcle called ſtapedius.

FIGURE VI. *Oſſicula*, in its own ſituation with the membrane of the tympanum, as they appear within the cavity, and above from the top of the left bone of the temples.

a. Malleus, its manubrium inſerted in the membrane of the tympanum; the head is connected upwards with the incus by ginglimus; the ſhort crus inſiſtit membranoſæ expanſioni to the cellulæ of the maſtoid proceſs. *b. Incus* adheres to the malleus and os orbiculare. *c. Os orbiculare* between the incus and ſtapes. *d.* Stapes.

FIGURE VII. *Cochlea twice as large as nature.*

a. Cochlea: is a conical canal around the oſſeous cone, called *mediolus*, two and half times revoluted; it is divided into two cavities from the top to the bottom by a kind of ſpiral, very friable lamina; hence the cavities are called *ſcalæ*, of which the anterior and rather narrow beginning from the veſtibulum is called *ſcala veſtibuli*; the other poſterior and large commences from the feneſtra rotunda, which is a little turned towards the tympanum, and is called *ſcala tympani.* The end of theſe ſcalæ is ad apicem of the mediolus juſt mentioned, in which place a ſlight ſinus is excavated in modum infundibuli. In that place it becomes a ſpiral lamina, not with bone but with membrane; and the ſcalæ on both ſides open into it, which appear to communicate together in this place: *b. Canales ſemicirculares ſuperiores c. Feneſtra rotunda*, ſituated inferiorly and poſteriorly; above this feneſtra there is a membrane from the perioſteum of the tympanum and cochlea, and ſeparates the cavity of the cochlea from that of the tympanum. *d.* There is a ſuperior and inferior *feneſtra ovalis*, which leads to the veſtibulum, the ſtapes at its baſe lies upon this; this feneſtra is cloſed by no peculiar membrane. *e.* Foramen for the portion of the nervus durus. *f. Scala tympani. g. Scala veſtibuli.*

FIGURE VIII. *Labyrinthus*; to this head belong the internal cavities of the petrous bone: *canales ſemicirculares*, &c.

a. Cochlea. b. Labyrinthus ſuperior. c. Labyrinthus medius. d. Labyrinthus inferior. e. Veſtibulum; is the middle cavity between the cochlea and canals; the three ſemicircular canals open into the veſtibulum by five different foraminula. *f. Scala veſtibuli. g. Scala tympani. h.* The entrance of the portion of the ſoft nerves into the veſtibulum. The labyrinth reflects the ſound, by which the nerves more ſtrongly vibrate.

FIGURE IX. *Section* of the *cochlea*, with the veſſels of the membrane of the ſpiral lamina, which is taken away, except the uppermoſt part.

a. Scala veſtibuli. *b.* Scala tympani.

FIGURE X. Section of the cochlea, which contains the the foramen of the acuſtic nerve.

PLATE LI. *Omentum.*

Figure I.

When the figures of the *omentum majus* alone, and the gaſtrocolicon part of it, are repreſented by the ancients, as in *Garengeot's Splanchnologia*, tom. vi. which exhibits the *omentum minus*, or *little omentum*. This has no exact limits, and does not appear according to nature; it will not be uſeleſs, therefore, to give another figure, as likewiſe another deſcription.

A A. The hollow reclined part of the *liver*, ſo that the margin which was inferior is anterior, and the anterior, is now, ſuperior. B B. *Veſicula fellea*, or gall-bladder, is commonly ſhorter in young ſubjects than the liver. C. *Vena et foſſa umbilicalis.* D. *Lobulus*, improperly ſo called by *Spilegius*, whoſe eminence is pellucid through the little omentum. E. *Stomach*, the anterior curvature of which eſpecially appears, but covered with bullæ of the inflated omentum. F. *Arteria et vena gaſtro-epiploica dextra.* G. The ſeat of the *annulus pylorus.* H. The apex of the *lien* projecting anteriorly into the cavity of the omentum, placed between the ſtomach and inteſtinum colon. I. *Ligament* which ſuſtains the ſpleen, different from the other, not annexed to the lien but moving freely, which is, for the moſt part, the ſacrum ſeat of the left meſocolon, yet not unfrequently, rather of the tranſverſe, annexed to the peritonæum to the ſeat of the tenth, eleventh, or twelfth rib; to this ligament the omentum emits itſelf, yet, for the greater part, it is white and firm, and the tranſverſe ſituation of the ſpleen ariſes, eſpecially from that vinculum. K. *Omentum* majus, commonly called *gaſtrocolicum*, the *terminations* of it are; the *ſuperior* and anterior from the whole curvature of the ſtomach, *inferior* and poſterior from the greater part of the *tranſverſe colon*; the inferior limit is, when the anterior *gaſtric lamina* meets with the *poſterior colica s.* this, in children, is almoſt to the *umbilicus*, or navel; in adults it deſcends much lower, the fatter the perſon is, even to the pubis. The left end, as well as the middle part of the ſpleen, receives veſſels as well as the ligament I. into which the omentum degenerates, as well as the colon. The right termination is with difficulty expreſſed by the line L. For the omentum either terminates the tranſmediate ventricle, near the pylorus, or from the pylorus, never more to the right ſide; and from the acceſſion of the vaſa gaſtroepiploic veſſels before the meſocolon, in which it innates, and runs to the colon by a deſcending right line, or one inclining obliquely to the left, and there, the ſac of the omentum terminates. L. The *line of ſeparation* of the omentum from the meſocolon. M. The *origin* of the *gaſtrocolic omentum* from the anterior curvature of the ſtomach, from which the anterior lamina goes out. N. *Conglobate glands*, in this line adjacent to the origin of the omentum. O. The *line* of the *origin* of the *omentum magnum* from the inteſtinum colon: *s. lamina poſterior.* P. Left end, or *finis cæcus* of the omentum. Q. *Omentum minus* of *Winſlow*, or a more macilent membrane, which beginning is formed from a *foſſa* of the ductus venoſus, to the tranſition or paſſing of the hepatic artery, there continued to the membranes of the funicle of the hepatic veſſels, which I have ſaid, that the tranſduodenum hath continued to the meſocolon, degenerating in the end a little into the ligamentum hepatico œſophageum, and paſſing the lobe of the liver, it immits itſelf into the minor curve of the ſtomach. In the cavity it has the lobulum, or little lobe, and the nudated lumbar glands. R. *Omentum colicum*, the perpetual appendix of the great omentum, which from the end of the colic line L. to even the end of the tranſverſe meſocolon, and ſometimes a little beyond, from the inteſtine colon, not having touched the ſtomach, from a double line, it proceeds, ſimilar in magnitude equally lying looſely on the inteſtines, and, on the little lobe, it elegantly terminates. This ſaid portion is not ſeen, which cedes to the great, ſo that it is larger than the ſmaller portion. In the entrance of the omentum, which the repreſentation hath not admitted, ſome things are to be added to Winſlow's deſcription. There is an *hiatus*, or interval, which from a narrow beginning, and longiſh tract, between the biliary veſſels and continued vena portarum, anteriorly ſituated, and between the poſterior depreſſed lobe of the liver is received, which the hepatic veſſels excavate, and which the ancients accounted, for a right vena portarum. Beſides, a farther continued lunated hiatus to this way, diſcovered by Winſlow, through which air can be equally admitted to the cavity of the ſmaller omentum; the extreme porta of the liver, which I have ſaid from the oppoſite neareſt to the inferior part, but diſtinct, is the ultimate radix of the meſocolon, which paſſing the pancreas, goes immediately forth to the deſcending duodenum; anteriorly, it is a faſciculus of the hepatic veſſels, behind, the nudated peritonæum, ſmooth and equal. The vena cava lies to it a little to the right. S. Part of the meſocolon, between the right limit of the great omentum, and conjunction of the colon with the duodenum.

Figure II. *Pancreas.*

a. *Glands*, ſeparate a peculiar juice. *b.* *Excretory ducts*, convey the juice from every gland into a common duct, called ductus pancreaticus communis. *c.* *Ductus pancreaticus*, from the ductuli running together through the middle of the pancreas, runs to the inteſtinum duodenum. *d.* The *place* where the pancreatic juice is mixed with the bile. *e.* *Oſtium*, where both liquors flow into the duodenum.

PLATE LII. *Of the omentum, &c. repreſentation the ſecond.*

All the former parts are exhibited; but with the greater omentum on both ſides collapſed, and the colon drawn a little downwards, that the way to the concealed omentum might appear.

A A. The concave part of the *liver* reclined, that, what parts are anterior ſhould be ſuperior, or uppermoſt. From whence it follows, the gall-bladder naturally placed tranſverſely, and its fundus anterior, its neck poſterior, in a contrary manner to the common, is deſcribed.

B B. The gall-bladder, or *veſicula fellis.*

C. The umbilical vein, or *vena umbilicalis.* Here I add in the fœtus a much larger umbilical vein than *ductus venoſus*, that the calculation of the *lumina* will be 629 to 100, and ſo, when the umbilical vein gives many branches to the liver, a great part of the umbilical blood is not immediately carried to the *ductus venoſus*, but through the liver to the *vena cava*.

D. *Lobulus ſpigelii* through the ſmaller omentum pellucens, or viſible, as in the former plate.

E F. The *ſtomach* almoſt empty, in the ſmaller curvature of which the *lobulus ſpigelii* enters, but plainly protecting anteriorly the left part of the liver.

G. The *pylorus* from which the *firſt flexion* of the *duodenum* aſcends backwards.

K K. The *gaſtrocolicon omentum* collapſed. In this appears to ariſe ſingly from the ſtomach but not altogether, and not ſo from the *duodenum*, as many authors have aſſerted.

O O. The *limits* in the *colon*, from which the *gaſtrocolicon omentum* come forth.

Q Q. The *ſmaller omentum*, or *omentum minus*.

S S. *Parts of the meſocolon*, to the left, part of the ſecond tranſverſe *duodenum* appears pellucider, the right *meſocolon* from the top of the kidney, a little obliquely, aſcends inwardly, covers the ſeat of the *vena cava*, and applies itſelf to the firſt duodenum, then to the pancreas, and riſes anteriorly to the ſame duodenum again and comes through to the porta of the omentum, where from the fiſſure of the liver, with the veſſels, comes to another aſſociating root of the meſocolon, equally paſſing the duodenum goes to the colon, and likewiſe from the pylorus tranſverſely under the ſtomach, through the whole latitude of the abdomen, and continued even to the ſpleen more manifeſtly an emerging lamina is followed anteriorly.

The inferior and ſimilar tranſverſe places itſelf to this, free, and emerging to the duodenum, then a continuance of the external membrane of the riſing jejunum, nearly joined to the meſenterium.

Between theſe two laminæ is the whole pancreas, and all the duodenum, but more evidently the inferior part, the meſenteric artery, and its aſſociating veins, and biliary ducts.

By inflation the internal receives air, and ſwells in bubbles, not diſſimilar to the omentum.

T T T. Various parts of the *colon*.

Y. The *ſecond flexus*, or bend of the *duodenum*, ſeated on the gall-bladder, or *veſicula fellis.*

X. The *third flexion* of the *duodenum*, or the deſcending part in which the *ductus* choledochus immits itſelf.

Y. *Ligamentum*, or membranes, which go from the gall-bladder in a continued tranſverſe ſulcus, paſſing the duodenum, to which they adhere for an external membrane, &c. Theſe are ſaid by *Winſlow* to ariſe from the liver and gall-bladder, but terminate in the duodenum, and Monro, ſen. calls a duplicature of the omentum; but it is, there, a ſimple, yellowiſh, and ſmooth membrane, a continuation of the capſula of Elliſon, and to the minor omentum.

Z. *a*. The *hepatic renal ligament*, or of the peritonæum, from the kidney to the liver aſcending, a double plica, or fold; *Winſlow* thinks it the pancreatic ligament for the other ſide of its foramen. But this is the ultimate radix, or root of the meſocolon, which contains the duodenum, as in the former plate R. is ſeen.

Z. The *left limits*.

a. The *right limits* of this ligament.

b b. The *right kidney* covered with the peritonæum.

c. The *meatus* of the celebrated *Winſlow*, between the *ligamentum hepatico colicum* and hepatico renale, as well as between the lobe of the liver and duodenum, and neareſt the pancreas intercepted, a little drawn out out, that it ſhould appear to be lunated, and conflected about the liver. Rightly Winſlow of this, but that this *hiatus* is longer continued, and that it goes between the liver and bile ducts, he hath not obſerved. Garengcot has given a rude plate in his *Splanchnolog.* T. vi. f. 1. which compare with ours.

d d. The colon with its pinguedinous appendix.

e e e. *Inteſtina tenuia*, or ſmall inteſtines.

f f. Part of the *pancreas*, which inſinuates itſelf between the flexures of the duodenum.

The two plates of the omentum, &c. are of ſome uſe in conſidering inciſted dropſies of the parts, as may be ſeen in my Treatiſe on Swelled Legs, Dropſies, &c. The firſt Figure in Plate LI. gives a clear repreſentation of the gall ducts and pancreatic duct opening in the duodenum. This demonſtration may ſerve to correct an opinion, common in the mouths of uninformed mankind, and even ſome medical practitioners, of bile generating in the ſtomach. No bile is ever in the ſtomach unleſs forced there by the inverſion of the periſtatic motion of the duodenum, from whence *bile* may proceed into the ſtomach. When vomits are given by the ignorant, they frequently obſerve *bile* come up: but this bile, in general, is forced there from the duodenum by the vomit. On the injurious practice of giving vomits in what are called bilious complaints read my *Treatiſe* on *Nervous Diſeaſes*, &c.

PLATE LIII. *Male parts of generation.*

FIGURE I. *Repreſents the bladder open on the anterior part; the proſtrate gland is divided above the corpora cavernoſa; and the urethra is cut through all its length.*

Name, ſituation, &c.	*Connection, &c.*	*Termination, uſe, &c.*
a. Veſica, bladder, a membranaceous ſacculus.	With the umbilicus, os pubis, inteſtinum rectum, and genitals.	Poſteriorly in men to the inteſtinum rectum.
b. Urachus, above the bladder.	Is rarely hollow.	Goes to the liver.
c. Aperture of the ureters, with a duplicature of the internal membrane of the bladder.	Two membranous canals perforate the membrane of the bladder.	Carry the urine from the kidneys into the bladder.
d. Part of the bladder drawn to the ſide.		
e. Caput Gallinaginis.	Tranſmits the ſemen from the veſiculæ ſeminales.	Into the urethra.
Vaſa differentia.	Are two on each ſide.	They carry the ſemen into the veſiculæ.
f. Foramina of the proſtate ducts.	Emit the mucus of the proſtate.	Into the urethra.
g. Urethra opening lengthways with the lacunæ.	Which lacunæ being irritated a greater quantity of mucus flows out.	The matter of gonorrhœa comes from theſe lacunæ.
h. Proſtate cut off at the beginning of the urethra.	The proſtate is a cordiform, glandulous, cavernous body.	Separating the mucus to be mixed with the ſemen.
i. The beginning of the *corpus cavernoſum* with the muſculus erector.	Is gradually produced from the bulb of the penis.	Forms the largeſt part of the penis.
l. The *corpus cavernoſum* of the other ſide.	From the blood ſtagnating in the cellular texture.	The gland is diſtended; in this way erection of the penis is cauſed.
m. Bulb of the urethra.	Situated near the proſtate.	From it the corpus cavernoſum.
n. One of the *glands* of Cowper.	They are of the mucus kind.	Separate a lubricating humour.
o. Its *excretory duct*	Opens into the urethra.	The mucus lubricates the urethra.
q. The ſpongious texture of the urethra.	Through its whole length.	The urethra is very ſenſible.
r. Foſſa navicularis.	The ſame as the orifice of the urethra.	Eliminates the ſemen and urine.
s. The *corpora cavernoſa* open.	The blood driven into theſe bodies.	Produces rigidity.

t. Glans penis, is the anterior part. *v.* Part of the urethra where the inciſion is made. *x.* Spongious texture of the urethra.

FIGURE II. *Shews the poſterior part of the bladder and inferior part of the penis.*

a. The *bladder* with the external membrane.	Receives the urine from the ureters.	And retains it.
b. Ureters and their inſertion.	*c. Veſiculæ ſeminales.*	*d. Vaſa deferentia.*
e. Inſertion of the vaſa deferentia with the veſiculæ ſeminales.	The ſemen is preſerved in theſe veſſels, and partly in the veſiculæ.	*Tabes* takes place from exceſſive profluvium of the ſemen.
f. Gyri of veſiculæ.	The ſperma is detained in them.	In them obſtructions, &c.
g. Ductus communis to the veſiculæ and vaſa deferentia.	If the internal membrane of the urethra be inflamed this oſtium opens.	Upon this duct being obſtructed, congeſtion of ſemen, tumors, &c.
h. Proſtate without any involucra adheres under the neck of the bladder.	The mucus is eliminated into the urethra about the caput gallinaginis.	Tumors and ſchirri of the proſtate impede the emiſſion of urine.
i. Membranous part of the *urethra* is often injured by injections.	The ſemen is thrown from the urethra by the action of the muſcles.	Contraction of the fibres, calli, carunculæ, ulcers, fungi, take place.
l. Acceleratores cut off to ſhew the ſpongious texture of the bulb.	*Caudæ of the acceleratores* terminating in the corpora cavernoſa.	Incontinence of urine from the paralyſis, or laxity of the muſcles, impotence of the proper excretion, or only dropping guttatim.
m. Acceleratores above the bulb.	*p.* Poſterior part of the urethra.	
n. Tendo acceleratorum.	*q.* Beginning of the corpora cavernoſa with the *erectores.*	

FIGURE III. *Repreſents the teſticle with the membrane called albuginea.*

r. Body of the teſticle.	Separates the ſperma virile, is compreſſed by the cremaſter.	Carries the ſperma into epididymis, which paſſes the ſemen into the vas deferens.
s. Epididymis lies upon the teſtes.	Receives the ſperma from the teſtes.	
t. Chorda funiculus ſpermaticus, compoſed of artery, veins, nerves.	The ſpermatic artery and nerves deſcend through the abdominal annulus, or ring.	
v. Beginning of the vas deferens.	The vas deferens receives the ſemen from the epididymis.	And tranſmits it to the veſiculæ ſeminales, from whence it is thrown through the urethra in coition.
x. Vas deferens.		

PLATE LIV.

FIGURE I.

A. Inferior part of the abdomen and mons veneris.
B B. *Labia pudenda* ſeparated.
C. *Clitoris* and *præpuce*.
F. *Foſſa magna*, or os externum.
G. *Meatus urinarius*.
H. *Perinæum*.
I. *Anus*.
K. The part covering the extremity of the coccyx.
L. The parts covering the tuberoſity of the os iſchium.

FIGURE II.

Section of the uterus and of the vagina of a girl of a few weeks.

A. *Uterus* opens through the poſterior facies.
B. *Ovaria* and tubæ fallopianæ.
C. *Vagina* opening anteriorly.
Γ. Its interior, nervous, rugous membrane.
Δ. Its exterior, fibrous fleſh.
D. Circellus of the diſſected *hymen*.
E. Crenated and rough orifice of the uterus.
F. *Septum* of the uterus compoſed of three juga.
G. Anterior column of the cervex uteri.
H. Poſterior.
I. Small valves of the cervex uteri.
K. Valvulous part of the vagina neareſt to the uterus.
L. The anterior column of the vagina is largeſt.
M. Poſterior and leſs column.
N. Intermediate caruncula.
O. The neareſt part of the hymen compoſed of circular valves.

The *mons veneris* is a fatty eminence covered with hairy ſkin, lying on the pubiis.

Labia majora are two fatty eminences, beginning under the mons veneris, covering the labia minora, and running by the ſides of the orifice of the vagina to the perinæum, and there unite together by means of a tranſverſe cutaneous fold, called *frenulum labiorum*.

Labia minora, alſo called *nymphæ*, are two cutaneous folds like cocks gills, ſituated at the ſides of the orifice of the vagina.

Clitoris is a glandiform particle, which adheres under the anterior commiſſure of the labia majora.

Hymen is a membrane moſtly ſemilunar, which adheres to the orifice of the vagina in chaſte virgins.

Vagina uterina is a membranous tube which begins within the minora, then aſcends in the cavity of the pelvis between the oſſa pubis and inteſtinum rectum to the neck of the uterus.

The *vagina* conſiſts of *three membranes*.
The external is *cellular* from the tela celluloſa.
The middle *muſcular* which conſiſts of carneous fibres.
The *internal*, called *rugous*. Theſe *rugæ* are *tranſverſe*.

Urethra is a membranaceous canal, larger than the urethra virilis, and deſcending from the neck of the veſica urinaria within the oſſa pubis, and opens by its orifice under the clitoris within the principia nympharum.

Uterus, or womb, is that ſpongious *receptacle* which is ſituated in the cavity of the pelvis above the vagina, between the urinary bladder and inteſtinum rectum.

Its *figure* is like a compreſſed pear, hence
Its *diviſion* into *bottom*, which is the higheſt and broadeſt part.
neck, which is the loweſt part, narrowed to a point, and into
the *orificium uterinum*, which is the tranſverſe rima in the neck of the uterus, which projects into the vagina.

Cavity of the uterus is ſmall in a virgin, ſcarcely the ſize of an excorticated amygdala, with three *apertures*. Two are at the ſides of the uterus, called the *orificia interna* of the fallopian tubes. The third aperture, is below, viz. the *orificium uterinum*.

The *broad ligaments* of the *uterus* originate from the duplicature of the peritoneum, which gives the external membrane to the uterus. They are extended from the ſides of the uterus to the oſſa ilia; they ſuſtain the uterus, tubæ, and ovaria.

The *round ligaments* of the *uterus* ariſe from the ſides of the uterus ſub fundo, go to the inguinal ring, and there terminate in fat.

Tubæ fallopianæ, are two membranaceous canals, which ariſe from the bottom of the uterus laterally, and run towards the ovaria in the ſuperior margin of the broad ligament.

The *ovaria* are two plane bodies ſituated in the cavity of the pelvis at the ſides of the uterus. Their exterior *ſurface* is *fibrous*, but their internal *veſicular*, at leaſt, in virgins. Theſe veſiculæ are called *ovula muliebra*, and diſappear in the aged.

The *glands* of the genitals are:

1. *Glandulæ mucoſæ* vaginales, which are ſituated under the rugous tunic of the vagina.
2. *Glandulæ odoriferæ* of the labia and clitoris.
3. *Glandulæ muciparæ urethræ*, which are found under its internal membrane.

The *uſe* of the parts of generation is for *copulation*.
conception.
nouriſhment of the fœtus.
parturition.
menſtruation.

BRITISH MUSEUM 30 SE 80

In the thirty-fourth plate the urine bladder, uterus, and rectum, are ſeen laterally, and ſhew the exact ſpace they fill up in the pelvis. This view ought to be well recollected in the practice of midwifery, and in the treatment of many female complaints, to account for cauſes, ſymptoms, &c. in various diſeaſes. *Patience* in *hard labours* cannot be too ſtrongly inculcated; for inſtruments are rarely, very rarely neceſſary, and, when uſed, generally tear the parts, ſo as to render future life truly miſerable!